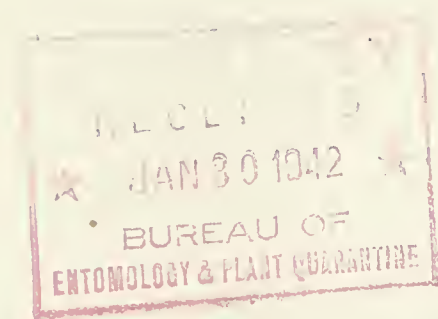


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A PRELIMINARY CHECK LIST OF THE ENTOMOGENOUS FUNGI OF NORTH AMERICA

By Vera K. Charles

Associate mycologist, Division of Mycology and Disease SurveyBureau of Plant IndustryUnited States Department of Agriculture

The fungi which parasitize or grow in association with many species of economic insects have long been a subject of interest to entomologists. Information concerning them, however, is widely scattered and often appears in periodicals or mycological works not readily accessible to the working entomologist or others interested. It has seemed worth while, therefore, to prepare this list as a means of pointing out the large numbers of fungi and insect hosts actually involved.

It is recognized that the list can be considered as preliminary only, because there are undoubtedly many entomogenous fungi and their insect hosts as yet unreported or overlooked in the preparation of this paper. It is hoped that the list will awaken sufficient interest to stimulate entomologists, mycologists, and collectors in general to report new fungi and new hosts, as well as further distributional records. Such assistance will be appreciated and will serve to make possible in the future a more complete and thereby more useful list.

The data presented here are based primarily on an index of entomogenous fungi which has been maintained for many years as part of the Mycological Collections of the Bureau of Plant Industry. This index includes data from the literature on the subject, including fungus lists and monographic accounts, from correspondence and from herbarium specimens. Only the herbaria of the Bureau of Plant Industry and the Smithsonian Institution have been worked over in this connection. Time and circumstances have not permitted work in other fungus herbaria, but it is hoped that available data from other institutions can be obtained later on. The Laboulbeniaceae, constituting a very large group of minute species, have not been considered because, although parasitic on insects, they do not kill their hosts and are therefore not entomogenous fungi in the usual sense of the term.

Geographically the list covers the North American Continent, including the West Indies and the countries of Central America, which is essentially the area included in Seymour's "Host Index of the Fungi of North America." Except for the United States and Puerto Rico, however, available data are decidedly fragmentary, but serve at least to point out how little is known on the subject and where the gaps in our knowledge occur.

For ease of reference an alphabetical arrangement of the species is presented, no attempt being made to follow any system of classification. Each recognized species is set off in caps followed by the authority and a citation to the place of publication. Pertinent synonyms, that is to say, those which occur in the entomogenous fungus literature, have been included, but no effort has been made to work out complete synonymy. Synonyms are underscored.

Insect hosts are arranged under each fungus in alphabetical order and to the right of each is placed the known distribution of the fungus attacking it. For the United States distribution is indicated by States, but otherwise by countries. Hosts for which no specific distribution is indicated are records from Seymour's "Host Index of the Fungi of North America" or other sources which omit reference to locality. In general, records of insect hosts infected by artificial inoculations have been omitted.

A complication often arises in that many fungi in the course of their life cycles may produce two reproductive stages and each may be given a distinct botanical name. This is particularly true in the case of the ascus-producing fungi (Ascomycetes) where normally a perfect (ascus) stage and an imperfect (conidial) stage occur, as for example Ophiocordyceps clavulata (Schw.) Petch and Hirsutella lecaniicola (Jaap) Petch. The latter name applies to the so-called imperfect stage. Under the rules of botanical nomenclature, the perfect-stage name has precedence over any names applied to conidial or imperfect stages and is given preference in this list; however, as many conidial names occur commonly throughout the literature they have been included, but their status as such properly indicated. Cross references will enable such fungi to be located under either name.

A list of insects with their entomogenous fungi is appended. As noted above, the place of publication of each fungus species is cited, but it is recognized that this is of interest primarily to the systematic mycologist. The entomologist or general collector will be more concerned with the general literature on the subject and, accordingly, a few of the more important and accessible works dealing with entomogenous fungi are given following the list of species. Most of the articles cited contain bibliographies so that the references included, though few, will provide a means of exploring the entire field.

Grateful acknowledgment is made to Miss Gertrude Myers, of the Division of Insect Pest Survey and Information, Bureau of Entomology and Plant Quarantine, for checking the scientific names of the insect hosts in order that they might conform to present-day entomological nomenclature. We also appreciate the opportunity of consulting A. T. Speare's index in the Division of Insect Pest Survey and Information on the subject of entomogenous fungi.

An asterisk is used to designate combinations of fungus and host represented by specimens in the mycological collections of the Bureau of Plant Industry.

ACREMONIELLA SP.

Host: *Crioceris asparagi* (L.)

ACREMONIELLA VERRUCOSA Togn. Rend. R. Ist. Lomb. di Sci.
et Lett. (2 ser.) 29: p. 3
extr. 1896.

Host: *Hypera punctata* (F.)

Va.*

ACREMONIUM TENUIPES Petch Brit. Mycol. Soc. Trans. 21:
64-66. 1937.

Syn. *Sporotrichum araneorum* Cav. Fung. Longob. exsic. No. 240. 1892.

Host: *Araneida*

Mass.

ACROSTALAGNIUS ALBUS Preuss Linnaea 24: 126. 1851.

Hosts: *Aphis* sp.

P. R.

Corythaica monacha Stal

Pyrausta nubilalis (Hbn.)

Pa.

Sipha flava (Forbes)

P. R.

ACROSTALAGNIUS APHIDUM Oud. Nederland. Kruidk. Arch. (Ser. 3)
2: p. 759. 1902.

Hosts: *Aphis* sp.

P. R.,* Fla.*

Aphis gossypii Glov.

Carolinaria cyperi Ainslie

Corythaica monacha Stal

P. R.

Hysteroneura setariae (Thos.)

P. R.*

Macrosiphoniella sanborni (Gill.)

Ind.

Myzus persicae (Sulz.)

Fla.*

Rhopalosiphum pseudobrassicae (Davis)

Tex.

Rhopalosiphum rufomaculatum (Wilson)

Ind.

Sipha flava (Forbes)

P. R.*

Toxoptera aurantiae (Fonsc.)

Dominican Republic

AEGEDRITA WEBBERI Fawcett Mycologia 2: 167. 1910.

Hosts: *Aleurodes* sp.

Ala.,* Fla.,* La.,*

Costa Rica,* Cuba,*

Dominican Republic.

Aleurocanthus woglumi Ashby

Cuba

Aleurodicus minimus Quaint.

Fla., P. R.

Aleurothrixus howardi (Quaint.)

Fla., P. R.

Dialeurodes citri (Ashm.)

Ala.,* Fla.,* La.,* Miss.*

P. R.

Dialeurodes citrifolii (Morg.)

Fla.

ASCHERSONIA SP.

Hosts: *Aleurocanthus woglumi* Ashby

Cuba, Dominican Republic

Aleurodes sp.

Cuba, Dominican Republic.

Guatemala, Mexico, P. R.

Coccus viridis Green

P. R.*

Dialeurodes citri (Ashm.)

Fla., Cuba

Eucalymnatus tessellatus (Sign.)

La.,* P. R.

Locanium nigrofasciatum Perg.

ASCHERSONIA ALTYRODIS Webber U. S. Dept. Agr. Veg. Phys.
& Path. Bul. 13: 21. 1897.

Imperfect stage of Hypocrella libera Syd.

Hosts: Aleurocanthus woglumi Ashby

Fla., * Costa Rica,
Cuba, * Dominican
Republic, P. R.
Fla., * Cuba, * P. R.
Cuba, * Panama
P. R.
Jamaica
P. R.*

Aleurodes sp.

Aleurodicus cardini Back.

Aleurodicus minimus Quaint.

Aleurodicus pimentae Laing

Aleurothrixus howardi (Quaint.)

Berisia inconspicua (Quaint.)

Coccidae

Dialeurodes citrifolii (Morg.)

Lecanium sp.

Trialeurodes abutilonea (Hald.)

Trialeurodes floridensis (Quaint.)

C. Z.*

Fla.

Fla.

Fla.

ASCHERSONIA ARISTATA Ell. (Considered pycnidial form of
Hypocrea phyllogena Mont. by
Patouillard in correspondence
2-15-1895.)

Host: Lecanium sp.

Fla.*

ASCHERSONIA AURANTIACA Petch Brit. Mycol. Soc. Trans.
23: 135-6. 1939.

Imperfect stage of Stenoecrea aurantiaca Petch

Host: Paraleurodes perseae (Quaint.)

Fla.*

ASCHERSONIA BASICYSTIS Berk. & Curt. Linn. Soc. Jour.
10: 302. 1868.

Imperfect stage of Hypocrella phyllogena (Mont.) Petch

Host: Lecanium sp.

Costa Rica, Cuba,
Jamaica, P. R.

ASCHERSONIA BRUNNEA Petch Paradeniya, Ceylon, Roy. Bot.
Gard. Ann. 7: 251. 1921.

Host: Unidentified hosts

Fla., Costa Rica*

ASCHERSONIA COLUMNIFERA Petch Paradeniya, Ceylon, Roy.
Bot. Gard. Ann. 7: 253. 1921.

Host: Aleurodes sp.

Fla.

ASCHERSONIA CURENSIS Berk. & Curt. Linn. Soc. Jour.
10: 351. 1868.

Imperfect stage of Hypocrella epiphylla (Mass.) Sacc.

Hosts: Unidentified hosts

Aleurocanthus woglumi Ashby

Coccidae

Cuba, P. R.*
C. Z.

Fla., Dominican
Republic, P. R.*

Costa Rica

Fla., P. R.

Fla.

P. R.

P. R.

Fla.

Coccus acuminatus (Sign.)

Eucalymnatus tessellatus (Sign.)

Lecanium sp.

Lepidosaphes beckii (Newm.)

Salisetia hemisphaerica (Targ.)

Toumeyella liriiodendri (Gmel.)

ASCHERSONIA FLAVO-CITRINA of Fla. not P. Henn. See also
A. goldiana Sacc. & Ell.

Hosts: Aleurodicus minimus Quaint.
 Dialeurodes citri (Ashm.)

P. R.*
 Fla.*

ASCHERSONIA GOLDIANA Sacc. & Ell. Sacc. Syll. 14: 990.
 1899.

Hosts: Aleurodes sp.

Cuba
 Fla., Costa Rica,*
 P. R.
 Jamaica
 Panama*
 Fla.

Aleurocanthus woglumi Ashby
 Dialeurodes citri (Ashm.)
 Dialeurodes citrifolii (Morg.)

ASCHERSONIA TURBINATA Berk. Ann. Nat. Hist. (ser. 2) 9:
 192. 1852.

Imperfect stage of Hymocrella turbinata (Berk.) Petch

Hosts: Aleurocanthus woglumi Ashby
 Ceroplastes sp.
 Ceroplastes floridensis Comst.
 Coccidae

P. R.
 P. R.
 Fla.
 Fla.,* La.,* C. Z.,*
 Cuba, Dominican Republic,
 Panama,* P. R.
 La.*
 Fla., La.,* P. R.
 P. R.*

Coccus hesperidum L.
 Lepidosaphes beckii (Newm.)
 Vinsonia stellifera Westw.

ASCHERSONIA VIRIDANS (Berk. & Curt.) Soc. Mycol. de France,
 Pat. Bul. 7: 48. 1891.

Imperfect stage of Hymocrella viridans (Berk. & Curt.) Petch

Host: Aleurodidac

Cuba,* P. R.

ASCHERSONIA ZAMIA Webber (Miss. name)

Host: Diaspis zamiae Morg.

Fla.*

ASPERGILLUS SP.

Host: Harmolita sp.
 Musca domestica L.
 Pseudococcus sp.

Va.
 Tex.
 P. R.

ASPERGILLUS DEPAUPERATUS Petch Brit. Mycol. Soc. Trans. 16:
 244. 1932.

Host: Tetranychus telarius (L.)

Kans.*

ASPERGILLUS EFFUSUS Tiraboschi Ann. di Bot. (Rome) 7: 16. 1908.

Host: Apis mellifera L.

D. C.

ASPERGILLUS FLAVESCENS Bidan See Gee, P. W. and Massey, A. B.,

Aspergillus infecting Malacosoma at high temperatures.

Mycologia 4: 279-281. 1912.

Host: Malacosoma americana (F.)

S. C.

ASPERGILLUS FLAVUS (Group) sensu Thom & Church The

Aspergilli 198-207. 1926.

- Host: Apion occidentale Fall Mo.*
 Apis mellifera L. (widespread) Mich.
 Gilpinia polytomum (Htg.)
 Microplectron fuscipennis Zett. Maine*
 Mordellistena sp. Mo.*
 Palaeococcus rosae (R. & H.)
 Pseudococcus boninsis (Kuw.) La., Barbados, Cuba,
 Dominican Republic, P.R.
 Pseudococcus sp. La., Dominican Republic

ASPERGILLUS FLAVUS-ORYZAE sensu Thom & Church The

Aspergilli 198-207. 1926.

- Host: Apis mellifera L. D. C.

ASPERGILLUS FUMIGATUS (Fres.) sensu Thom & Church

- Host: Apis mellifera L. (Imported from Europe)

Aspergillus glaucus (Lk.) See Thom & Church The

Aspergilli 104. 1926.

- Host: Apis mellifera L.

ASPERGILLUS MIDULANS (Eiden) Wint. Rabh. Krypt. Flora (2 auf.)

Bd. 1, Abt. 2: 62. 1887.

- Host: Apis mellifera L.

ASPERGILLUS NIGER v. Tiegh. Ann. Sci. Nat. (ser. 8) 5: 240.

1867.

Syn: Sterigmatocystis nigra v. Tiegh. Soc. Bot. de France

Bul. 24: 102-103. 1877.

- Host: Prodenia sp. Calif.

ASPERGILLUS OCHRACEUS Wilhelmi Beitrage z. Kennt. d. Pilzgattung

Aspergillus Inaug. Diss. Strassburg, 66. 1877.

- Host: Apis mellifera L. Conn., D. C.

ASPERGILLUS ORYZAE (Ahlburg) Cohn sensu Thom & Church

The Aspergilli 198-207. 1926.

- Host: Apis mellifera L.

ASPERGILLUS PARASITICUS Speare Hawaiian-Sugar Planter's Expt.

Sta. Path. & Phys. ser. Bul. 12:

38. 1912.

- Host: Apis mellifera L. D. C.
 Diatraea saccharalis (F.) Cuba*
 Microbracon hebetor (Say) Calif.*
 Pseudococcus sp. Cuba*
 Pseudococcus boninsis (Kuw.)
 Pyrausta nubilalis (Hbn.)

ASPERGILLUS SYDOWI (Bainier & Sartory) Thom & Church The
Aspergilli 147-148. 1926.

Syn.: Sterigmatocystis sydowi Bainier & Sartory Ann. Mycol.
11:25-29. 1913.

Host: *Anastrepha serpentina* (Wied.)

Mexico*

ASPERGILLUS TAMARII Kita Centralb. f. Bakt. Par. & Infek.
Abt. II, 37: 433-452. 1913.

Host: *Atta singularis* (Guer.)

Cuba*

ATICHIA DOMINICANA Cotton Kew Bul. 1914: 59. 1914.

Host: *Lepidosaphes beckii* (Newm.)

Dominican Republic

BEAUVERIA SP.

Hosts: *Agrotis badinodis* Grote

Agrotis orthogonia Morr.

Carpocapsa pomonella (L.)

Del., Va.*

Chalepus dorsalis Thunb.

Va.*

Feltia annexa (Treit.)

Feltia ducens Walk.

Feltia gladiaria (Morr.)

Heliophila sp.

Dominican Republic

Polia renigera (Steph.)

Prodenia ornithogalli Guen.

BEAUVERIA BASSIANA (Bals.) Vuill. Soc. Bot. de France
Bul. 59: 34-40. 1912.

Syn.: Botrytis bassiana Bals. Linnaea 10: 609. 1835-6.

Sporotrichum larvatum Pk. N. Y. State Mus. Rpt.
32:44. 1879.

Sporotrichum larvicolum Pk. N. Y. State Mus. Bul.

1 (No. 2): 18. 1887. For discussion of this and
the preceding species see Fetch Brit. Mycol. Soc.
Trans. 19: 188-189. 1935.

Sporotrichum entomophilum Pk. N. Y. State Mus. Rpt.
50: 116. 1897.

Hosts: *Agriotes nancus* (Say)

Maine*

Anopheles quadrimaculatus Say

Fla.*

Aphodius fimetarius (L.)

Canada

Automeris sp.

Bombyx mori L.

Dominican Republic

Bruchus pisorum (L.)

Oreg.

Carpocapsa pomonella (L.)

Del., N. Y., Va.*

Cicada sp.

Va.*

Crambus sp.

Ind.*

Curculio caryae (Horn)

Ala.

Diacrisia virginica (F.)

Colo.

Diatraea crambidoides (Grote)

Ala.

Diatraea saccharalis (F.)

La.*

Dyslobus decoratus (Lec.)

Wash.

Eutheola rugiceps (Lec.)

Ark.

BEAUVERIA BASSIANA (Continued)

- Hosts: Heliophila sp. Dominican Republic
 Heliopsis arnigera (Hbn.) Conn.*
 Hypera punctata (F.) Va.*
 Hylastinus obscurus (Marshall) Oreg.*
 Lepidoptera Va.*
 Leptinotarsa decemlineata (Say) Canada
 Ligyrus gibbosus (Dog.) Ark.*
 Magicicada septendecim (L.) Va.*
 Nysius ericae (Schill.) D. C.
 Popillia japonica Newm. N. J.
 Pyrausta nubilalis (Hbn.) Conn., * Mass., Ohio,*
 Scolytus multistriatus (Marshall) N. J.*
 Sitona hispidula (F.) Va.*
 Staphylinidae Va.*

BEAUVERIA DENSE (Lk.) Vuill. Soc. Bot. de France Bul.
 59: 34-40. 1912.

Syn.: Sporotrichum densum Lk. Mag. Ges. naturf.
 Freunde Berlin 3: 13. 1809.
Botrytis tenella Delacr. Jour. d'Agr. pratique 165. 1891.

- Hosts: Arachnida
 Autographa brassicae (Riley) Md., * Colo.*
 Calendra maidis (Chittn.)
 Dasychira groenlandica Hoyer
 Hadenocercus subterraneus Scudd.
 Hymenoptera
 Melolontha vulgaris F.
 Muscidae Kans.
 Phyllophaga fusca (Froel.)
 Tipula infuscata Loew
 Tipulidae

BEAUVERIA DORYPHORAE Poisson & Patay Acad. des Sci. Paris
 Compt. Rend. 200: 961.
 1935.

- Host: Leptinotarsa decemlineata (Say) Canada

BEAUVERIA GLOBULIFERA (Speg.) Pic. Montpellier Ecole Natl.
 d'Agr. Ann. 13: 121-
 248. 1914.

Syn.: Sporotrichum globuliferum Speg. Anal. Soc. Sci.
 Argentina 9: 278-285. 1880.

- Hosts: Anthonomus fulvus (Lec.) Kans.
 Aphanus umbrosus (Dist.) Kans.
 Aphodius sp. Kans.
 Autographa brassicae (Riley) Md., * Colo.*
 Blissus hirtus Montd. N. Y.*
 Blissus leucopterus (Say) Kans., Nebr., Ohio,*
 Camponotus herculeanus pennsylvanicus (Dog.) Canada
 Kans.

BRAUVERIA GLOBULIFERA (Continued)

Hosts: Carpocapsa pomonella (L.)	Kans.
Ceratomegilla fuscilabris (Muls.)	Kans.
Chaetocnema pulicaria Melsh.	Va.*
Cicadellidae	La.,* P. R.
Coccinellidae	La.
Coccus hesperidum L.	D. C.
Conotrachelus erinaceus Lec.	Kans.
Conotrachelus nenuphar (Hbst.)	Kans.
Corcoris batatas (F.)	P. R.*
Corythucha gossypii (F.)	Kans.
Cucujidae	Kans.
Curculionidae	Kans.
Cylas formicarius (F.)	La., Miss.*
Datana sp.	Kans.
Diabrotica longicornis (Say)	Middle West and East
Diabrotica soror Lec.	
Diabrotica vittata (F.)	
Diaspis zaniae Morg.	
Diatraea saccharalis (F.)	Tex.*
Disomycha xanthomelaena (Dalm.)	Kans.
Disomycha pennsylvanica (Ill.)	Ill.
Disomycha triangularis (Say)	Kans.
Dorytomus sp.	Kans.
Drosophila sp.	P. R.
Eupoasca sp.	Dominican Republic
Eupoasca fabae (Harr.)	
Epicauta lemniscata F.	La.*
Epilachna varivestis Muls.	N. Mex., Va.*
Estignene acraea (Drury)	Kans.*
Formicidae	Kans.
Galerucella xanthomelaena (Schr.)	Conn., D. C., Va., Wash.
Gryllus sp.	Kans.
Halictus illinoisensis Robts.	Kans.
Heliothus armigera (Hbn.)	Kans.
Hemaris sp.	Kans.
Hippodamia convergens Guer.	Kans.
Hypera punctata (F.)	Utah
Hyphantria sp.	Kans.
Laphygma frugiperda (A. & S.)	Tex.*
Lebia bivittata F.	Kans.
Macronoctua onusta Grote	Wis.
Magisicada septendecim (L.)	
Melanoplus sp.	Kans.
Melanoplus differentialis (Thos.)	Kans.
Melanoplus femur-rubrum (Dug.)	Kans.
Melanoplus mexicanus Sauss.	Kans.
Melanoplus mexicanus spretus (Walsh)	Kans.
Monocrepidius sp.	Kans.
Murgantia histrionica (Fahn)	
Musca domestica L.	Kans.

BEAUVERIA GLOBULIFERA (Continued)

Hosts: Nabis roseipennis Reut.	Kans.
Nysius ericae (Schill.)	Ky.
Olibrus sp.	Kans.
Pagasa fusca (Stein.)	
Parandra brunnea (F.)	
Pentatomidae	Va.,* Kans.
Phalaenidae	Kans.
Phyllophaga sp.	Kans.
Phyllophaga inversa Horn	Kans.
Phymatidae	Kans.
Pieris rapae (L.)	D. C.*
Plusia sp.	Ky.
Polydesmus sp.	
Polygonia interrogationis (F.)	
Protoparce sexta (Johan.)	
Protoparce sp.	Ky.
Pyrausta nubilalis (Hbn.)	Kans., Ga.*
Rodolia cardinalis (Muls.)	Kans., N. Y.*
Samia cecropia (L.)	
Schistocerca americana (Drury)	Ky.
Selenothrips rubrocinctus (Giard)	Dominican Republic
Sitona hispidula (F.)	Va., Md.
Solubea pugnax (F.)	
Sphingidae	Kans.
Staphylinidae	Wash.*
Stilpnotia salicis (L.)	Mass.*
Tenthredinidae	Kans.
Thripidae	P. B.
Thyanta custator (F.)	Kans.
Trichobaris texana Lec.	Kans.
Vespa sp.	

BEAUVERIA MELOLONTHAE (Sacc.) Cif. Estacion Agron. de
Moca Bul. (ser. B. Bot.)
14: 169. 1929.

Syn.: Botrytis melolonthae Sacc. Ann. Mycol. 10: 320. 1912.

Host: Not given

Dominican Republic

BEAUVERIA VEXANS (Pettit) Petch Brit. Mycol. Soc. Trans.
10: 240 and 251. 1926.

Syn.: Isaria vexans Pettit N. Y. (Cornell) Agr. Expt.
Sta. Bul. 97: 365-368. 1895.

Hosts: Blissus leucopterus (Say)

Euphydryas phaeton Drury

Formicidae

Phyllophaga sp.

Pieris rapae (L.)

Schizura concinna (A. & S.)

Thyridopteryx ephemeraeformis (Haw.)

N. C.

BOTRYTIS SP.

Host: Schistocerca paranensis Burn.

Mexico

Botrytis bassiana Bals. See Beauveria bassiana (Bals.) Vuill.

Botrytis melolonthae Sacc. See Beauveria melolonthae (Sacc.) Cif.

Botrytis rileyi Farl. See Spicaria rileyi (Farl.) Charles

Botrytis tenella Delacr. See Beauveria densa (Lk.) Vuill.

Boudierella coronata Cost. See Entomophthora coronata (Cost.) Kevorkian

CALONECTRIA HIRSUTELLAE Petch Brit. Mycol. Soc. Trans.
21:49. 1937.

Host: Cicadellidae

N. C.

CEPHALOSPORIUM SP.

Hosts: Araneidae

Mexico

Byturus unicolor Say

Wash.*

Coccidae

Fla.,* P. R.

CEPHALOSPORIUM LECANII Zimm. Indische Cult. (Teysmannia)
9:240-243. 1899.

Syn.: Verticillium lecanii (Zimm.) Viegas (Sao Paulo)

Inst. de Cafe Rev. 14:754-772. 1939.

Hosts: Aspidiotus destructor Sign.

Dominican Republic,
P. R.

Ceroplastes floridensis Comst.

Coccus hesperidum L.

Coccus mangiferae (Green)

Coccus sp.

Fla., Dominican Republic,
P. R.

Coccus viridis Green

Fla.,* Cuba, Dominican
Republic, P. R.

Icerya purchasi Mask.

Cuba,* P. R.*

Lecanium sp.

Fla.

Lecanium nigrofasciatum Perg.

La.

Protopulvinaria pyriformis (Ckll.)

Pseudonidia duplex (Ckll.)

La.

Pseudococcus nipae (Mask.)

P. R.

Saissetia hemisphaerica (Targ.)

Dominican Republic,
P. R.*

Saissetia nigra (Nietn.)

Saissetia oleae (Bern.)

P. R.

CEPHALOSPORIUM LONGISPORUM Petch Brit. Mycol. Soc. Trans.
10:171. 1925.

Host: On unidentified host.

P. R.

CLADOBOTRYUM HETEROCLADUM (Penz.) Petch. Brit. Mycol. Soc.
Trans. 16: 233. 1932.
Syn.: Verticillium heterocladium Penz. (non Fawcett) Michelia
2: 462. 1882.

CLADOSPORIUM SP.

Host: Aonidiella aurantii (Mask.) Calif.*
Aphidiidae Calif., D. C., N. C.,
N. Y., Ohio
P. R.*
Asterolecanium bambusae Boisd.
Chauliognathus pennsylvanicus Deg.
Diacrisia virginica (F.) Colo.
Dialeurodes citri (Ashm.) Fla., La.*
Hormaphis hamamelidis Fitch Fla.*
Icerya purchasi Mask. La.*
Pseudaonidia duplex (Ckll.) La.*
Sipha flava (Forbes) Cuba,* P. R.

CLADOSPORIUM APHIDIS Thuem. Osterr. Bot. Ztschr. 27:
12. 1877.

Hosts: Aphis sp. Fla., N. Y., N. C.,
Ohio,* Tex.
Aphis gossypii Glov. Calif.,* Colo., P. R.*
Aphis spiraecola Patch Calif.*
Elissus leucopterus (Say) Ind.
Brevicoryne brassicae (L.) N. Y.
Cicadellidae Costa Rica,* P. R.
Icerya purchasi Mask. Miss.
Myzus persicae (Sulz.) P. R.
Orchestes rufipes Lec. Maine*

CLADOSPORIUM HERBARUM (Pers.) Lk. Mag. Gesell. Naturf.
Freunde Sitzber Ber-
lin 7: 37. 1816.

Syn.: Dematium herbarum Pers. Tent. Disp. Method.
Fung., p. 75. 1797.

Host: Icerya purchasi (Mask.) La.*
Melanocallis caryaefoliae (Davis) Ga.

Clavaria brachiata Batsch. See Isaria brachiata (Batsch) Schum.

Clavaria sobolifera Hill. See Cordyceps sobolifera (Hill) Sacc.

Conidiobolus villosus Martin. See Entomophthora coronata (Cost.)
Kevorkian.

CORDYCEPS SP.

Hosts: Aeolus dorsalis (Say) Canada
Apion sp. Mo.
Camponotus abdominalis Roger
Cicadidae D. C.,* La.*

CORDYCEPS SP. (Continued)

Hosts: Desmoris fulvus (Lec.)	Mo.*
Diatraea saccharalis (F.)	Guadeloupe
Diptera	Ala.,* Mo.*
Epilachna borealis (F.)	
Heliothis armigera (Hbn.) Immature	Va.*
Micropezidae	Cuba*
Polia legitima (Grote)	
Scapteriscus acletus R. & H.	Fla.,* S. C.*
Sphenophorus sp.	
Tibicen vitripennis (Say)	La.

Cordyceps acicularis Rav. See Ophiocordyceps acicularis (Rav.)
Petch

Cordyceps albella (Berk. & Curt.) Mass. Ann. Bot. 9: 39.
1895. See Penicillium albellum
(Mass.) Petch

Cordyceps albida Berk. & Curt. See Cordyceps albella (Berk.
& Curt.) Mass.

CORDYCEPS AMAZONICA P. Henn. Hedwigia 43: 247. 1904.

Host: Blattidae British Honduras

Cordyceps arachnophila Thax. See Torrubiella gibellulae
Petch

Cordyceps barberi Giard. See Hirsutella barberi (Giard)
Petch

CORDYCEPS BELIZENSIS Mains Mycologia 32: 21. 1940.

Host: Lepidoptera British Honduras

Cordyceps caloceroides Berk. & Curt. See Ophiocordyceps
caloceroides (Berk. & Curt.) Petch

Cordyceps carolinensis Berk. & Rav. See Ophiocordyceps
acicularis (Rav.) Petch

Cordyceps cicadae (Miq.) Mass. See Cordyceps soboliferæ (Hill)
Sacc.

Cordyceps clavulata (Schw.) Ell. & Ev. See Ophiocordyceps
clavulata (Schw.) Petch

Cordyceps cockerellii (Ell. & Ev.) Ell. See Cordyceps sphingum
(Schw.) Berk. & Curt.

CORDYCEPS CURCULIONUM (Tul.) Sacc.

Host: Curculionidae. See Petch Brit. Mycol. Soc. Trans.
21: 39-40. 1937.

Honduras

CORDYCEPS DIPTERIGENA Berk. & Br. Linn. Soc. Jour. 14:

111. 1873.

Perfect stage of Hymenostilbe dipterigena Fetch Brit.

Mycol. Soc. Trans. 16: 212-213.

1932.

Hosts: Muscidae

Miss.,* N. C., Tenn.,
Costa Rica, Panama, P. R.

Cochliomyia macellaria (F.)

P. R.

Diptera

Drosophila sp.

Mydaea sp.

P. R.

CORDYCEPS DITMARI Quel. Soc. Bot. de France Bul. 24:

317. 1877.

Syn.: C. langloisii Ell. & Ev. North Amer. Pyren., p.

62. 1892.

Hosts: Eumenes sp.

La.

Vespula vulgaris L.

CORDYCEPS FLONGATA Fetch Brit. Mycol. Soc. Trans.

21: 34-67. 1937.

Imperfect stage Hirsutella gigantea Fetch

Hosts: Acrionicta americana (Harr.)

N. C., Maine, Tenn.

Lepidoptera

British Honduras

Cordyceps fornicivora Schreot. See Onhiocordyceps

unilateralis (Tul.) Fetch

Cordyceps gigantea (Mont.) Mass. See Icaria gigantea Mont.

CORDYCEPS GRACILIS Mont. & Tur. Flora Algeria 1: 449. 1846-69.

Hosts: Unidentified hosts

Fla.,* Ind., N. Y.

Elateridae

Mich.

Lepidoptera

Mich.

CORDYCEPS HESLERI Mains. Elisha Mitchell Sci. Soc. Jour.

55: 125. 1939.

Host: Cicada sp.

Tenn.

Cordyceps humberti Robin. See Onhiocordyceps humberti

(Robin) Fetch

CORDYCEPS INSIGNIS Cke. & Rav. Grovillia 12: 38. 1883.

Perfect stage of Hirsutella saussurei (Cke.) Speg.

Host: Coleoptera

N. Y.,* S. C.

CORDYCEPS ISARIOIDES Curt. Ann. Bot. 9: 36. 1895.

Host: Lepidoptera

Cordyceps langloisii Ell. & Ev. See Cordyceps ditmari Quel.

CORDYCEPS LLOYDII Fawcett Ann. Bot. List. (ser. 5) 18: 316. 1886.

Syn.: Cordyceps sherringtonii Mass. Ann. Bot. 5: 510. 1891.

Perfect stage of Hymenostilbe fornicarum Fetch

Host: Camponotus sp.

Panama

CORDYCEPS MACULARIS (Mains) Mich. Acad. Sci., Arts and
Letters, Mains' Papers 25:
82. 1940.

Syn.: *Ophiocordyceps macularis* Mains Amer. Phil. Soc.
Proc. 74: 269-270. 1934.

Host: Scarabaeidae

Mich., N. Y.

CORDYCEPS MELOLONTHAE (Tul.) Sacc. Michelia 1: 320. 1878.

Syn.: *Torrubia melolonthae* Tul. Sel. Fung. Carp. 3: 12. 1865.
Cordyceps rickii Lloyd Mycol. Writings 6: 911-916. 1920.

Hosts: Coleoptera

Phyllophaga spp.

Conn. to Ohio,

Mass., Mich., Tenn.*

Ill., Minn.

Phyllophaga fusca (Froel.)

CORDYCEPS MICHIGANENSIS Mains Elisha Mitchell Sci. Soc.

Jour. 55: 123. 1939.

Host: Scarabaeidae

Mich., N. C., Tenn.,*

Ontario

CORDYCEPS MILITARIS (L.) Lk. Handb. 3: 347. 1833.

Imperfect stage *Cephalosporium* sp., according to Petch
Brit. Mycol. Soc. Trans.
20: 216-224. 1936.

Syn.: *Clavaria militaris* L. Species Plantarum 1182. 1753.

Torrubia militaris Tul. Sel. Fung. Carp. 3: 6. 1865.

Hosts: *Isia isabella* (A. & S.)

Maine, N. H.,

N. J., Pa., Wis.

Maine, N. C.

Ill.*

Lepidoptera

Phyllophaga sp.

Phyllophaga fervida (F.)

Unidentified hosts

Calif., Iowa, Md.,*

Mass., Maine,* Mo.,

N. C.,* N. H.,* S. Dak.,

Tenn.,* Va.,* W. Va.,*

Canada,* P. R.

CORDYCEPS MONTICOLA Mains Mycologia 32: 310. 1940.

Host: *Gryllotalpa hexadactyla* Perty

Tenn.*

CORDYCEPS MYRMECOPHILA Ces. Bot. Ztschr. 4: 877. 1846.

Hosts: Formicidae

Wash.

CORDYCEPS OPHIOGLOSSOIDES (Thr. ex Fr.) Lk. Handb. 3: 347.
1833.

Host: Hexapoda

CORDYCEPS PALUDOSA Mains Mich. Acad. Sci. Papers 25:
83. 1940.

Host: Lepidoptera

Mich.

CORDYCEPS PALUSTRIS Berk. & Br. Linn. Soc. Jour. 1:159. 1857.

Host: Coleoptera.

S. C.

Cordyceps peltata Wakef. See Ophiocordyceps peltata
(Wakef.) Patch

Cordyceps pistillariaeformis Berk. & Br. See Ophiocordyceps
: clavulata (Schw.) Patch

CORDYCEPS PITTIERI Bomm. & Rouss. Soc. Roy. de Bot. de Belg.
Bul. 35: 160. 1896.

Host: Coleoptera

Costa Rica

CORDYCEPS PUIGGARII Speg. Acad. Nac. de Cien. Cordoba,
Bol. 11: 535. 1889.

Host: Hexapoda

Cordyceps ravenelii Berk. & Curt. See Ophiocordyceps acicularis
(Rav.) Patch

Cordyceps rickii Lloyd. See C. melolonthae (Tul.) Sacc.

Cordyceps sherringii Mass. See Cordyceps lloydii Fawcett

CORDYCEPS SMITHII Mains Elisha Mitchell Sci. Soc. Jour.
55: 127-129. 1939.

Host: Vespa sp.

Tenn.

CORDYCEPS SOBOLIFERA (Hill ex Berk.) Sacc. Michelia 1: 321. 1878.

Perfect stage of Isaria cicadae Miq. Bul. Sci. Phys. & Natur.
Neerlande 1: 85-86. 1838.

Syns.: Clavaria sobolifera Hill Roy. Soc. Phil. Trans. 53:
271-4. 1764.

Cordyceps cicadae (Miq.) Mass. Ann. Bot. 9: 38. 1895.

Hosts: Cicada sp.

Cuba*, Dominican
Republic, Mexico*,
West Indies

Coleoptera
Scarabaeidae

CORDYCEPS SPHECOCEPHALA (Klotzsch) Oke. Vegetable Wasps and
Plant Worms, p. 40. 1892.

Syn.: Sphaeria sphecocephala Klotzsch Hooker's Jour. Bot.
(London) 2: 206. 1843.

Perfect stage of Hymenostilbe sphecocephala (Ditm.) Patch

Hosts: Polistes americana (F.)

Polistes lineatus (F.)

Tachytes argentipes Smith

Vespa sp.

P. R.

P. R.

Fla.,* Tenn.,* Cuba,
P. R.,* West Indies

CORDYCEPS SPHINGUM (Schw.) Berk. & Curt. Linn. Soc. Jour.
10: 375. 1868.

Syn.: Torrubia sphingum Tul. Fung. Carp. 3: 12. 1865.
Ophionectria cockerellii Ell. & Ev. Inst. Jamaica
Jour. 1: 141. 1892.

Cordyceps cockerellii (Ell. & Ev.) Ell. Inst.
Jamaica Jour. 1: 180. 1893.

Hosts: Coccyti antaeus Drury N. C., Tenn.
Pholus vitis L. British Honduras
Sphinx sp. N. H., N. J. to N. C.,
Unidentified larvae Tenn., Jamaica

CORDYCEPS STYLOPHORA Berk. & Br. Linn. Soc. Jour. 1: 158.
1857.

Hosts: Carabidae N. Mex.
Coleoptera Mich., N. Y., S. C., Tenn.
Dendroides bicolor Newm. Mich., N. Y., S. C.
Elateridae
Unidentified larvae

CORDYCEPS SUBMILITARIS P. Henn. Hedwigia 36: 222. 1897.

Host: Coleoptera British Honduras

CORDYCEPS SUBSESSILIS Petch Brit. Mycol. Soc. Trans. 21: 39.
1937.

Host: Larvae of Coleoptera N. C., Tenn.

CORDYCEPS SUPERFICIALIS (Pk.) Sacc. Syll. Fung. 2: 574. 1883.

Syn.: Torrubia superficialis Pk. N. Y. State Mus. Rpt. 28:
70. 1875.

Hosts: Coleoptera Conn., Mass., Mich.,
N. Y., Ontario
Hexapoda
Unidentified larvae Mass.*

CORDYCEPS THAXTERI Mains Elisha Mitchell Sci. Soc. Jour. 55:
120-121. 1939.

Host: Araneida N. C., Tenn.

Cordyceps unilateralis (Tul.) Sacc. See Ophiocordyceps
unilateralis (Tul.) Petch

CORDYCEPS VARIABILIS Petch Brit. Mycol. Soc. Trans. 21:
142-144. 1937.

Hosts: Coleoptera Maine, Tenn., Wis.
Elateridae N. Y.

CORDYCEPS VIPERINA Mains. Mycologia 29: 674-677. 1937.

Host: Coleoptera N. Y., Tenn., Ontario,
Nova Scotia, British Honduras

Cordyceps wittii P. Henn. See Onhiocordyceps caloceroides (Berk. & Curt.) Petch

Coremium gracilis Petch. See Spicaria gracilis Petch

Corticium lepricurii Mont. See Septobasidium lepricurii (Mont.) Pat.

Corticium pannosum Fr. See Septobasidium pannosum (Fr.) Bres.

CYLINDROCOLLA DENDROCTONI Pk. Field Columbian Mus. Pub. 1: 99. 1896.

Host: Dendroctonus frontalis Zimm.

W. Va.

Daedalca rhabarbarina Mont. See Septobasidium rhabarbarium (Mont.) Bres.

DESMIDIOSPOREA MYRMECOPHILA Thaxter Bot. Gaz. 16: 203. 1891.

Host: Camponotus herculeanus L.
Formica sp.

Conn.

ENTOMOPHTHORACEAE

Recognizing the fact that the present method of separating the genera Empusa and Entomophthora is not satisfactory, it has seemed best to follow Thaxter's assignment of species as given in his monograph of "The Entomophthoraceae of the United States." Thaxter recognized the taxonomic difficulties presented by the family and discussed the subject on pages 152-155.

EMPUSA SP.

Hosts: Actebia fennica (Tausch.)

Canada

Aphiidae

Calif.*

Aphis spiraeicola Patch

Fla.

Autographa brassicae (Riley)

Fla.*

Blissus leucopterus (Say)

Kans.

Camula pellucida (Scudd.)

Canada

Chorizagrotis auxiliaris (Grote)

Kans.*

Cranbus sp.

Ontario

Diabrotica soror Lec.

Estigmene acrea (Drury)

Diptera

Fla.,* Ohio, Pa.*

Lygus communis novascotiensis Knight

Nova Scotia

Peregrinus maidis (Ashm.)

P. R.

Prodenia sp.

Rhopalosiphum prunifoliae (Fitch)

Ky.

Rhopalosiphum pseudobrassicae (Davis)

Tex.

Scotophaga sp.

Wash.*

Tonaspis saccharina Dist.

West Indies

EMPUSA AMERICANA Thax. Boston Soc. Nat. Hist. Mem. 4: 179. 1888.

Hosts: Calliphora sp.

Wis.

Calliphora vomitoria (L.)

Ala.,* N. C., New Eng.

EMPUSA AMERICANA Thax. (Continued)

Diptera

Lucilia caesar (L.)

Musca domestica L.

Muscina stabulans (Fall.)

Phormia regina (Meig.)

Conn., * D. C., * N. Y.*

N. C., New Eng.

N. C., New Eng.

Tenn.*

Tex.*

EMPUSA APHIDIS Hoffman In Fres. Senckenb. Naturf. Gesell.
Abhandl. 2: 201. 1858.

Hosts: Aphididae

Aphis sp.

N. Y., Mass.

D. C., * Ga., * Maine,

Minn., N. C., N. H.,

N. Y., * Va., * Wis.

N. C.*

Aphis forbesi Weed

Aphis pomi Deg.

Aphis sambuci L.

Blissus sp.

Blissus leucopterus (Say)

Brevicoryne brassicae (L.)

Callipterus trifolii Monell

Hormaphis hamamelidis Fitch

Macrosiphum allii Jackson

Macrosiphum lactucae (L.)

Macrosiphum pisi (Kltb.)

Myzus persicae (Sulz.)

Periphigus betae Doane

Phorodon humuli (Schr.)

Rhopalosiphum pseudobrassicae (Davis)

Va.

Ind., * Kans.

Ind., * Neb.

Va.*

Va.

Del.

Calif., * Oreg., Va., * Wis.

Calif.

EMPUSA APICULATA Thax. Boston Soc. Nat. Hist. Mem. 4:
163-164. 1888.

Hosts: Deltoidinae

Diptera

Hemiptera

Hyphantria cunea (Drury)

Hyphantria textor Harr.

Petrophora sp.

Tortrix sp. (adult)

Typhlocyba sp.

Maine, N. C.

Maine, N. C.

Maine, N. C.

Maine, N. C.

Maine, N. C.

Maine, N. C.

Maine, N. C.

EMPUSA APICULATA Thax. var. MAJOR Thax. Boston Soc. Nat.
Hist. Mem. 4: 164-165. 1888.

Hosts: Coleoptera

Deltoidinae

Empoasca papayae Oman

Hyphantria textor Harr.

Ptilodactyla serricollis (Say)

P. R.

Tenn.

N.C.

EMPUSA CAROLINIANA Thax. Boston Soc. Nat. Hist. Mem.
4: 167. 1888.

Hosts: Diptera

Tipula sp.

N. C.

N. C.

- EMPUSA CONGLOMERATA (Sor.)? Thax. Boston Soc. Nat. Hist. Men. 4: 162-163. 1888. N. C., N. H.
 Hosts: Diptera N. C., N. H.
 Tipulidae N. C., N. H.
- EMPUSA CONICA Now. Acad. Sci. Krakow Proc., 1883: 153. N. C., N. H.
 Hosts: Diptera N. C., N. H.
 Chironomidae N. C., N. H.
 Chironomus sp.
- EMPUSA CULICIS A. Braun. See Thaxter Boston Soc. Nat. Hist. Men. 4: 157-158. 1888. Wis.
 Hosts: Chironomus sp. Mass., Maine, Mich.,
 Culex sp. N. H.
 Culicidae Maine, Mass., N. H.
 Simulium venustum Say N. H.
- EMPUSA DIPTERIGENA Thax. Boston Soc. Nat. Hist. Men. 4: 177. 1888. Maine, Mass., N. C., N. H.
 Hosts: Mycetophilidae
 Diptera
 Tipula sp.
- EMPUSA ECHINOSPORA Thax. Boston Soc. Nat. Hist. Men. 4: 180-181. 1888. Ark.,* N. J.,* Va.*
 Hosts: Diptera Kans.*
 Myoclorous denticollis (Say) Maine, N. C., N. H.
 Sapromyza longipennis (F.)
- EMPUSA ERUPTA Husten Acadian Ent. Soc. Proc. 9: 31. 1924. Nova Scotia*
 Hosts: Lygus communis novascotiensis Knight Nova Scotia
 Plagiognathus sp.
- EMPUSA FRESSENI Now. Acad. Sci. Krakow Proc., 1883: 153. Maine, Mass., N. C.
 Hosts: Aphis pomi Deg. Fla.
 Aphis spiraeicola Patch Cuba(?)
 Hemiptera
 Hexapoda
 Myzus persicae (Sulz.) Fla., P. R.
 Peragrinus maidis (Ashm.)
 Periphyllus lyropictus (Koss.) N. H.*
 Phenacoccus sp. P. R.
 Pseudococcus citri (Risso) La.*
 Pseudococcus nipae (Mask.) P. R.
- EMPUSA GEOMETRALIS Thax. Boston Soc. Nat. Hist. Men. 4: 170-171. 1888. Maine
 Hosts: Epithecia sp. Maine
 Lepidoptera Maine
 Petrophora sp. Maine
 Thera sp.

EMPUSA GRACILIS Thax. Boston Soc. Nat. Hist. Mem. 4:
185-186. 1888.

Hosts: Diptera

N. C.

EMPUSA GRILLI (Fres.) Now. Acad. Sci. Krakow Proc., 1883: 153.

General distribution.

Conn., D. C.,
Iowa, Maine, Mass.,
N. C., N. H., N. Y.,
Ohio.

Hosts: Agrotis sp.

Arctidae

Camula pellucida (Scudd.)

Couthophilus sp.

Diacrisia virginica (F.)

Diptera

Dissosteira carolina (L.)

Va.*

Draculacophala mollipes (Say)

Estigmene acraea (Drury)

Maine*

Hyphantria cunea (Drury)

Hyphantria textor Harr.

Isia isabella (A. & S.)

Malacosoma sp.

Malacosoma americana (F.)

Melanoplus sp.

S. Dak.,* Wis., Canada

Melanoplus bivittatus (Say)

Minn., Canada

Melanoplus differentialis (Thos.)

Iowa

Melanoplus femur-rubrum (Dog.)

Canada

Melanoplus mexicanus (Sauss.)

Nev.*

Melanoplus mexicanus spretus (Walsh)

Musca domestica L.

W. Va.

Muscidae

Notolophus antiqua L.

Protoparce sexta (Johan.)

Rhagoletis completa Cress.

Calif.*

Tipula flavicans F.

Va.*

Trimerotropis maritima (Harr.)

EMPUSA LAGENIFORMIS Thax. Boston Soc. Nat. Hist. Mem.
4: 169. 1888.

Hosts: Aphis sp.

Maine, Mass., N. C.

Hemiptera

EMPUSA LAMPYRIDARUM Thax. Boston Soc. Nat. Hist. Mem.
4: 169-170. 1888.

Host: Chauliognathus pennsylvanicus Deg.

N. C.

EMPUSA LECANII Zimm.'s Lands. Plantentuin Meded. 44: 25-27.

1901. See Fitch Brit. Mycol. Soc.

Trans. 11: 254-258. 1926.

Host: Pseudococcus citri (Risso)

La.

EMPUSA MONTANA Thax. Boston Soc. Nat. Hist. Mem. 4:
180. 1888.

Hosts: Chironomus sp.
Diptera

N. H.

EMPUSA MUSCAE Cohn Nova Acta Leopoldina 25: 301. 1855.

General in the United States

Hosts: Calliphora vomitoria (L.)
Chlorops assimilis Macq.
Diptera

Drosophila melanogaster Meig.
Drosophila repleta Wollaston
Eusodes volucris O. S.
Kolla similis (Walk.)
Lucilia caesar (L.)
Musca domestica L.

Nev.*

P. R.

D. C., Kans.,* Neb.,*
W. Va.

Oscinis sp.
Pollenia rudis (F.)
Syrphidae
Syrphus sp.
Tachina sp.

W. Va.

EMPUSA OCCIDENTALIS Thax. Boston Soc. Nat. Hist. Mem. 4:
171-172. 1888.

Hosts: Aphidae
Hemiptera

Maine, Mass.
Maine, Mass.

EMPUSA PAPILLATA Thax. Boston Soc. Nat. Hist. Mem. 4:
166-167. 1888.

* Host: Diptera

N. C., N. H.

EMPUSA PLANCHONIANA (Cornu) Petch Brit. Mycol. Soc. Trans.
21: 34-36. 1937.

Syn.: Entomophthora planchoniana Cornu Soc. Bot. de France
Bul. 20: 189. 1873.

Host: Aphidae

Wash.

Empusa planchoniana (Cornu) of Thaxter. See E. thaxteriana Petch

EMPUSA RHIZOSPORA Thax. Boston Soc. Nat. Hist. Mem. 4:
183-185. 1888.

Hosts: Neuroptera
Phryganeidae

Maine, N. C.
Maine, N. C., Wis.

EMPUSA SCIARAE Olive Bot. Gaz. 41: 192. 1906.

Host: Sciara sp.

Wis.

EMPUSA SEPULCHRALIS Thax. Boston Soc. Nat. Hist. Mem. 4:
181-182. 1888.

Hosts: Diptera
Tipulidae

N. C., Tenn.
N. C., Tenn.

EMPUSA SPHAEROSPERMA (Fres.) Thax. Boston Soc. Nat. Hist.

Mem. 4: 172-175. 1888.

Syns.: Entomophthora sphaerosperma Fres. Bot. Ztg. 14:
883. 1856.

Entomophthora rhytonomi Arthur Bot. Gaz. 11:
14-17. 1886.

Hosts: *Agrilus bilineatus* (Web.)

Maine, Mass., N. C.,
N. H., N. Y.
Maine

Colias philodice Godart

Culicidae

Curculionidae

Dissosteira carolina (L.)

Empoasca fabae (Harr.)

Ohio*

Empoasca sp.

Fla.*

Halictus sp.

Hypera nigrirostris (F.)

Hypera postica (Gyll.)

Hypera punctata (F.)

Utah
Calif.,* N. Y.,* Ohio,
Va.*
Fla.*

Ichneumonidae

Lampyridae

Laphygma frugiperda (A. & S.)

P. R.

Lepidoptera

Fla.*

Loxostege sticticalis (L.)

Colo.*

Macrosiphum solanifolii (Ashm.)

Fla.*

Musca sp.

Tenn.

Musca domestica L.

N. H.

Muscidae

Mycetophilidae

Pieris brassicae (L.)

Pieris rapae (L.)

Psylla mali (Schmdd.)

Canada, Nova Scotia

Ptychodes trilineata (L.)

La.*

Phyllophaga sp.

Kans.*

Rhopobota naevana (Hbn.)

Mass.*

Thrips tabaci Lind.

Mass.

Typhlocyba pomaria McAtee

W. Va.*

EMPUSA TENTHREDINIS (Fres.) Thax. Boston Soc. Nat. Hist.

Mem. 4: 162. 1888.

Syn.: Entomophthora tenthredinis Fres. Senckenb. Naturf.
Gesell. Abhandl. 2: 201.
1858.

Hosts: Hymenoptera
Tenthredinidae

Maine
Maine

EMPUSA THAXTERIANA Petch Brit. Mycol. Soc. Trans. 21: 36. 1937.
 Syn.: Empusa planchoniana (Cornu) of Thaxter Boston Soc. Nat. Hist. Mem. 4: 165-166. 1888.

Hosts: Aphis sp. Maine, Mass.
 Hemiptera Maine, Mass.
 Macrosiphum pisi (Kltb.) Oreg.

EMPUSA VARIABILIS Thax. Boston Soc. Nat. Hist. Mem. 4: 183. 1888.

Hosts: Diptera N. C., Canada
 Tipulidae

EMPUSA VIRESCENS Thax. Boston Soc. Nat. Hist. Mem. 4: 178. 1888.

Hosts: Actebia fennica (Tausch.) Canada
 Cirphis unipuncta (Haw.)
 Lepidoptera

ENTOMOPHTHORA SP.

Hosts: Aphidiidae Nev.*
 Fontaria corrugata (Wood) Md.
 Forficula sp. Cuba*
 Harmolita tritici (Fitch)
 Hylotoma berberidis (Schr.)
 Morellia scapulata (Bigot) P. R.*
 Porthetria dispar (L.)
 Pseudococcus sp. La.*

ENTOMOPHTHORA ANISOPLIAE Metsch. See Metarrhizium anisopliae (Metsch.) Sor.

ENTOMOPHTHORA APHROPHORAE Rost. (?) Bot. Tidsskr. 20: 128. 1896; Petch, Brit. Mycol. Soc. Trans. 19: 179-180. 1935.

Host: Aphrophora parallela (Say) Pa.*

ENTOMOPHTHORA AULICAE (Reich.) Wint. In Rabh. Kryptogam. (2. auf.) bd. 1, abt. 1: 73. 1884.

Hosts: Agrotis sp.
 Amphipyra pyramidoides Guen.
 Catocala sp.
 Diacrisia virginica (F.)
 Estigmene acraea (Drury)
 Euchaetias eggle Drury
 Hyphantria textor Harr.
 Isia isabella (A. & S.)
 Lepidoptera
 Malacosoma americana (F.)

ENTOMOPHTHORA AULICAE (Reich.) (Continued)

Hosts: *Notolophus antiqua* (L.)
Pachysphinx modesta Harr.
Peridroma margaritosa (Haw.)
Protoparce sexta (Johan.)

Calif.

Hosts of *Empusa grylli* Fres., considered as a synonym by some authorities, are excluded. See Thaxter, p. 159.

ENTOMOPHTHORA BULLATA Thax. ined., *Povah* Mich. Acad. Sci.,
 Arts and Letters.
 Papers. 20: 120. 1935.

Hosts: *Calliphora* sp.
Cochliomyia macellaria (F.) Det. by E. W. Laake, Nov.,
 1935.

Mich.

Ga.*

ENTOMOPHTHORA CHROMAPHIDIS Burger & Swain Jour. Econ. Ent.
 2: 288. 1918.

Hosts: *Chromaphis juglandicola* (Kltb.)
Psocus sp.

Calif.

Calif.

ENTOMOPHTHORA CORONATA (Cost.) Kevorkian Puerto Rico Univ.
 Jour. Agr. 21:
 191-198. 1937.

Syn.: *Boudierella coronata* Cost. Soc. Mycol. de France
 Bul. 13: 38-43. 1897.
Conidiobolus villosus Martin Bot. Gaz. 80: 311-318.
 1925.

Host: *Nasutitermes* sp.

P. R.

ENTOMOPHTHORA FORFICULAE Giard Bul. Sci. de la France et
 Belg. 20: 211-212. 1889.

Host: *Forficula auricularia* L.

Wash.*

ENTOMOPHTHORA FUMOSA Speare U. S. Dept. Agr. Bul. 1117:
 6. 1922.

Hosts: *Phenacoccus* sp.
Pseudococcus citri (Risso)

Fla.*

Entomophthora phyttonomi Arthur See *Empusa sphaerosperma* (Fres.)
 Thax.

Entomophthora planchoniana Cornu See *Empusa planchoniana*
 (Cornu) Petch

Entomophthora sphaerosperma Fres. See *Empusa sphaerosperma*
 (Fres.) Thax.

EUROTIIUM SP.

Host: Chalcididae

FUMAGO VAGANS Pers. Mycol. Europe 1: 9. 1822; Sacc. Syll.
 Fungorum 4: 547. 1886.

Host: Honeydew of Aphididae

Tex.

FUSARIUM SP.

Hosts: Agrotis ypsilon (Rott.)	Ill.
Anastrepha mombinpraeoptans Sein	Fla.*
Anticarsia gemmatilis (Hbn.)	Fla.*
Aphis gossypii Glov.	Colo.
Aspidiotus perniciosus Comst.	Miss.*
Brachymerius sulcatus (F.)	Pa.
Carpocapsa pomonella (L.)	N. Y.*
Chauliognathus pennsylvanicus Deg.	Wash.
Coccinellidae	Ga.*
Colias eurytheme Bdv.	
Conopia exitiosa (Say)	Ga.*
Crymodes devastator (Brace)	Ill.
Cylas formicarius (F.)	Miss.*
Diatraea sp.	Cuba*
Diatraea saccharalis (F.)	
Diptera	
Feltia subgothica (Haw.)	Mo.*
Harmolita sp.	Va.*
Heliothis armigera (Hbn.)	Conn.*
Hypoderma bovis (Deg.)	N. Dak.*
Hypoderma lineatum (DeVill.)	Fla., Iowa, N. Dak.
Lepidoptera	Va.
Magicalicada septendecim (L.)	D. C.,* Va.*
Nephelodes emmedonia (Cram.)	Ill.
Oscinella frit (L.)	Fla.
Prodenia praefica Grote.	Calif.*
Sternechus paludatus Casey	N. Mex.*
Zonosemata electa (Say)	N. J.

FUSARIUM ALEYRODIS Petch Brit. Mycol. Soc. Trans. 7:
156 and 164. 1921.

Hosts: Dialeurodes citri (Ashm.)	Fla.
Lepidosaphes beekii (Newm.)	

FUSARIUM EPICOCUM McAlp. Fungus diseases of citrus trees in
Australia, 113. 1899; Petch, Brit.
Mycol. Soc. Trans. 7: 164. 1921.

Syns.: Microcera parlatoriae Trabut Bul. Agr. 1st Algerie
Tunis 1332. 1907.
Microcera curta Sacc. Ann. Mycol. 7: 437. 1909.
Microcera tonduzii Pat. Soc. Mycol. de France
Bul. 28: 142. 1912.

Host: Aspidiotus sp. Costa Rica

FUSARIUM LARVARUM Fekl. Mycol. Synb. 369. 1869.

Host: Diatraea sp.

FUSARIUM MERISMOIDES Cda. Icon. Fung. 2: 4. 1838.

Host: Heliothis sp. Kans.

FUSARIUM POAE (Pk.) Wr. In Wollenweber and Reinking Die

Fusarien, p. 47. 1935.

Syn.: Sporotrichum poae Pk. N. Y. State Mus. Bul. 67:
29. 1903.

Host: Musca domestica L.

Canada

FUSARIUM SOLANI (Mort.) App. & Wr. var. minus Wr. In

Wollenweber & Reinking

Die Fusarien, p. 13. 1935.

Host: Cylas formicarius (F.)

La.*

Gibellula arachnophila Vuill. See G. araneorum (Schw.) Syd.

GIBELLULA ARANEORUM (Schw.) Syd. Ann. Mycol. 30: 390-391. 1932.

Syns.: Iseria araneorum Schw. Naturf. Gesell. zu Leipzig
1: 126. 1822.

Iseria aspergilliformis Rostrup Vidensk. Medd.
Naturhist. For. Kjobenhavn
45: 92. 1893.

Gibellula arachnophila Vuill. Soc. Mycol. de France
Bul. 27: 80. 1911.

Gibellula suffulta Speare Phytopathology 2: 137.
1912.

Imperfect stage of Torrubiella gibellulae (Schw.)
Petch

Hosts: Araneida

Mexico, N. H.,* N. Y.,*

Va.,* Vt.,* P. R.*

Attidae

Gibellula capillaris Morgan (Type of this species does not
belong in this genus.)

Gibellula suffulta Speare See G. araneorum (Schw.) Syd.

Glenospora curtisii Berk. & Desmaz. See Septobasidium
curtisii (Berk. & Desmaz.)
Boed. & Stein.

Helicobasidium arboreum Couch See Septobasidium arboreum
(Couch) Boed. & Stein.

HIRSUTELLA SP.

Hosts: Diatraea saccharalis (F.)

Eucosma glomerana (Wltn.)

Pyrausta nubilalis (Hbn.)

Tropaea luna (L.)

Vespidae

Cuba*

Miss.*

Ohio

Fla.*

P. R.

HIRSUTELLA BARBERI (Giard) Petch Brit. Mycol. Soc. Trans.

21: 57-58. 1937.

Syns.: Isaria barberi Giard Biol. Soc. Compt. Rend. 46:
823. 1894.

Cordyceps barberi Giard Ann. Bot. 9: 18. 1895.

Hosts: Diatraea saccharalis (F.)

La.,* Barbados,
Dominican Republic,
Jamaica,* P. R.
P. R.

Diatraea lineolata Walk.

HIRSUTELLA CITRIFORMIS Speare Mycologia 12: 70. 1920.

Hosts: Fulgoridae

Hymenoptera

P. R.
Costa Rica*

HIRSUTELLA FLOCCOSA Speare Mycologia 12: 69. 1920.

Host: Peregrinus maidis (Ashm.)

Jamaica

HIRSUTELLA GIGANTEA Petch Brit. Mycol. Soc. Trans. 21:

48. 1937.

Imperfect stage of Cordyceps elongata Petch

Host: Acronicta americana (Harr.)

Conn., Maine, N. H.

HIRSUTELLA LECANIICOLA (Jaap) Petch Brit. Mycol. Soc.

Trans. 18: 53. 1933.

Syn.: Isaria lecaniicola Jaap Bot. Ver. der Brandonb.

Verhandl. 50: 49, 1908.

Imperfect stage of Ophiocordyceps clavulata (Schw.) Petch

Hosts: Coccidae

D. C., Fla., Md.,
N. Y., Vt.,* Va.

Locanium corni Boucho

HIRSUTELLA SAUSSUREI (Oke.) Speare Mycologia 12: 69. 1912.

Syn.: Isaria saussurei Oke. Vegetable Wasps and Plant

Worms, p. 53. 1892.

Imperfect stage of Ophiocordyceps humberti (Robin) Petch

Hosts: Bothriocera sp.

Va.*

Polistes americana (F.)

Polistes annularis (L.)

Polistes sp.

N. C.
Calif.

Vespidae

Mexico,* Panama,* P. R.*

HIRSUTELLA SUBULATA Petch The Naturalist 1932:

45-49. 1932.

Hosts: Conopia pyri (Harr.)

Carocapsa pomonella (L.)

N. Y., Va.*
Del., D. C., Ind.,* Va.*

HORMODENDRON SP.

Hosts: Coccidae

Selenaspidus articulatus (Morg.)

Barbados
Barbados

Hymenochaete septobasidioides P. Henn. See Septobasidium septobasidioides (P. Henn.) Lloyd

Hymenochaete siparia Berk. & Curt. See Septobasidium siparium (Berk. & Curt.) Bres.

HYMENOSTILBE AMPULLIFERA Petch Brit. Mycol. Soc. Trans. 21: 56. 1937.

Host: Dicranomyia pubipennis O. S.

N. C.

HYMENOSTILBE ARACHNOPHILA (Ditm.) Petch The Naturalist 1931: 249. 1931.

Syn.: Isaria arachnophila Ditm. In Sturm Deutschlands Flora (abt. 3) 1: 111. 1817.

Host: Araneida

HYMENOSTILBE DIPTERIGENA Petch Brit. Mycol. Soc. Trans. 16: 212-213. 1932.

Imperfect stage of Cordyceps dipterigena Berk. & Br.

Host: Diptera

Panama

HYMENOSTILBE FORMICARUM Petch Brit. Mycol. Soc. Trans. 16: 218. 1932.

Imperfect stage of Cordyceps lloydii Fawcett

Host: Formicidae

Panama

HYMENOSTILBE SPHECOPHILA (Ditm.) Petch Brit. Mycol. Soc. Trans. 21: 54-55. 1937.

Syn.: Isaria sphecophila Ditm. In Sturm Deutschlands Flora (abt. 3) 1: 115. 1817.

Imperfect stage of Cordyceps sphecocephala (Klotzsch) Cke.

Vespidae

P. R.

HYMENOSTILBE SPHINGUM (Schw.) Petch Brit. Mycol. Soc. Trans. 16: 217. 1932.

Syn.: Isaria sphingum Schw. Naturf. Gesell. zu Leipzig 1: 126. 1822.

Imperfect stage of Cordyceps sphingum (Schw.) Berk. & Curt.

Hosts: Erinnyis alope (Drury)

Sphingidae

Sphinx sp.

Unidentified hosts

P. R.

N. C., Tenn.

Hypocrea phyllogena Mont. See Hypocrella phyllogena (Mont.) Petch

Hypocrea viridans Berk. & Curt. See Hypocrella viridans (Berk. & Curt.) Petch

HYPOCRELLA SP.

Hosts: *Coccus acuminatus* (Sign.)
Dialeurodes citri (Ashm.)

Honduras, P. R.
P. R.*

HYPOCRELLA CAULIUM (Berk. & Curt.) Soc. Mycol. de France
Pat. Bul. 30: 346. 1914.

Syn.: *Corticium caulium* Berk. & Curt. Acad. Sci. Jour.
2: 279. 1853.

Host: Coccidae Costa Rica,* Honduras,
Panama,* P. R.

HYPOCRELLA DISJUNCTA Scavner Mycologia 12: 93-98. 1920.

Syn.: *Hypocrella phyllogena* (Mont.) Spog.(?) See Patch
Brit. Mycol. Soc. Trans.
10: 194. 1925.

Host: *Dialeurodes citri* (Ashm.) P. R.
Lecanium sp. (according to Patch) P. R.

HYPOCRELLA EPIDHYLLA (Mass.) Sacc. Syll. Fung. 11: 368. 1892.

Syn.: *Hypocrea epiphylla* Mass. Jour. Bot. 30: 164. 1892.

Perfect stage of *Aschersonia cubensis* Berk. & Curt.

Host: *Ceroplastes floridensis* Const.
Coccus hesperidum L. Fla.
Coccus mangiferae (Green)
Eriococcinac
Eucalymnatus tessellatus (Sign.)
Lecanium sp. Fla.
Lepidosaphes beckii (Nawn.)
Protopulvinaria pyriformis (Ckll.)
Saissetia hemisphaerica (Targ.)
Toumeyella liriiodendri (Gncl.)

HYPOCRELLA LIBERA Syd. Ann. Mycol. 14: 85. 1916.

Syn.: *Hypocrella nectrioides* Thax. in litt. See Patch
Brit. Mycol. Soc. Trans. 10: 191-193.
1925.

Perfect stage of *Aschersonia alcyrodis* Webber

Hosts: Coccidae Dominican Republic, Panama

Hypocrella nectrioides Thax. in litt. See *Hypocrella libera* Syd.

HYPOCRELLA PHYLLOGENA (Mont.) Patch Peradeniya, Ceylon, Roy.
Bot. Gard. Ann. 7: 228-232.
1921.

Syn.: *Hypocrea phyllogena* Mont. Ann. Sci. Nat. (ser. 2) 13:
340. 1840.

Perfect stage of *Aschersonia basicystis* Berk. & Curt.

Hosts: Aleurodes sp.
Dialeurodes citri (Ashm.) P. R.

HYPOCRELLA TAMONIAE Earle Mycologia 2: 87. 1910.

Host: Coccidae P. R.

HYPOCRELLA TURBINATA (Berk.) Petch Peradeniya, Ceylon,
Roy. Bot. Gard. Ann.
5: 535. 1914.

Perfect stage of Aschersonia turbinata Berk.

Hosts: Ceroplastes sp.

Ceroplastes floridensis Comst.

Coccidac

Coccus mangiferae (Green)

Lepidosaphes beckii (Newm.)

Fla.

Fla.

C. Z., * Costa Rica,

Dominican Republic, P. R.

West Indies

Hypocrella vilis Syd. See Noctria vilis (Syd.) Petch

HYPOCRELLA VIRIDANS (Berk. & Curt.) Petch Peradeniya,
Ceylon, Roy. Bot.
Gard. Ann. 7: 236-237.
1921.

Syn.: Hypocrea viridans Berk. & Curt. Linn. Soc. Jour.
10: 376. 1868.

Perfect stage of Aschersonia viridans (Berk. & Curt.) Pat.

This species is collected most frequently in the imperfect stage.

ISARIA SP.

Hosts: Unidentified hosts

Carpocapsa pomonella (L.)

Epilachna varivestis Muls.

Grapholita molesta (Busck)

Heliothis armigera (Hbn.)

Ormenis marginata Brunnich

Phalaenidae

Pseudococcus boninsis (Kuw.)

Saissetia oleae (Bern.)

Stilpnotia salicis (L.)

Vespa sp.

N. C., * Va.*

N. Mex.*

N. J., * Ohio*

N. Mex.*

P. R.*

Va.

P. R.*

N. C., * Va.*

Isaria arbuscula Hariot. See Isaria cicadae Miq.

Isaria arachnophila Ditm. See Hymenostilbe arachnophila (Ditm.) Petch

Isaria araneorum Schw. See Gibellula araneorum (Schw.) Syd.

Isaria asnergilliformis Rostrup. See Gibellula araneorum (Schw.) Syd.

ISARIA ATYPICOLA Yasuda Bot. Mag. (Tokyo) 31: 208-9.
1917; Petch, Brit. Mycol. Soc.
Trans. 23: 139-40. 1939.

Host: Araneida

Costa Rica

Isaria barberi Giard. See Hirsutella barberi (Giard) Petch

ISARIA BRACHIATA (Batsch) Schum. Enum. Plant. Saellandiae

2: 443. 1803.

Syn.: Clavaria brachiata Batsch Blench. Fung. (Sup. 1),
p. 233. 1786.

Hosts: Aronicta americana (Harr.)

Cicadellidae

Coleoptera

Maine

Tenn.

Tenn.

ISARIA CICADAE Miq. Sci. Phys. and Natur. Neerlande Bul.

1: 85-86. 1838.

Syn.: Isaria arbuscula Hariot Soc. Mycol. France Bul.

8: 67. 1892.

Isaria sinclairii (Berk.) Petch Brit. Mycol. Soc.

Trans. 10: 39. 1924.

Imperfect stage of Cordyceps sobolifera (Hill) Sacc.

For synonymy see Petch

Brit. Mycol. Soc.

Trans. 18: 65. 1933.

Hosts: Cicada sp.

Mexico,* Cuba*

ISARIA CRASSA Pers.(?) Syn. 687. 1801.

Host: Hexapoda

Isaria densa (Lk.) Fr. See Beauveria densa (Lk.) Vuill.

Isaria destructor Metsch. See Mettarrhizium anisopliae
(Metsch.) Sor.

ISARIA DUSSII Pat. Soc. Mycol. de France Bul. 16: 187. 1900.

Host: Hexapoda

Lepidoptera

Guadeloupe

Isaria farinosa (Dicks.) Fr. See Spicaria farinosa (Fr.) Vuill.

Isaria floccosa Berk. & Br. See Hirsutella subulata Petch

ISARIA FURCATA Schw. Amer. Phil. Soc. Trans. 4 (n. ser.):
305. 1832.

Hosts: Hexapoda

Lepidoptera

Pa.

ISARIA GIGANTEA Mont. = Cordyceps gigantea (Mont.) Mass.

Ann. Bot. 9: 1-44. 1895.

"Only imperfect stage known." Masseé

Host: Mygale cubana Walk.

Cuba

Isaria lecanicola Jaap. See Hirsutella lecanicola (Jaap) Petch

ISARIA NIGRIPES Schw. Amer. Phil. Soc. Trans. 4 (n. ser.):
305. 1832.

Hosts: Undetermined host
Lepidoptera

Mass.

ISARIA PATTERSONIAE Moss. Kew Bul., Misc. Inf. 1912:
358. 1912.

Hosts: Dysdercus sp.
Nezera viridula (L.)

St. Vincent

ISARIA RITCHIEI Lloyd ' Mycol. Writings 5: 855. 1919,
Host: Melolontha sp.

Jamaica

Isaria saussurei Cke. See Hirsutella saussurei (Cke.) Speare

Isaria sinclairii (Berk.) Petch. See Isaria cicadae Miq.

Isaria sphecophila Ditm. See Hymenostilbe sphecophila (Ditm.) Petch

Isaria sphingum Schw. See Hymenostilbe sphingum (Schw.) Petch

ISARIA TENUIPES Pk. N. Y. State Mus. Rpt. 31: 44. 1879.

Hosts: Arctiidae (dead pupae)
Hexapoda

N. Y.

ISARIA TOMICII Luggar Minn. Agr. Expt. Sta. Bul. 43: 127. 1895.
Host: Tonicus sp.

Minn.

ISARIA VEXANS Pettit See Beauveria vexans (Pettit) Petch

Knyaria coccicola (Stevenson) Cif. See Tubercularia coccicola
Stevenson

MACROSPORIUM SP.

Hosts: Chauliognathus pennsylvanicus Deg.
Diacrisia virginica (F.)
Myzus persicae (Sulz.)

Wash.
Colo.*

MASSOSPORA CICADINA Pk. N. Y. State Mus. Rpt. 31: 44. 1879.

Host: Magicicada septendecim (L.)

D. C.,* Ill.,
Md.,* Mich., N. J.,
N. Mex.,* N. Y., Ohio,
Tex., Va.*

METARRHIZIUM ANISOPLIAE (Metsch.) Sor. Ztschr. Kais.
Landw. f. Neurussland,
Odessa, p. 268. 1879.

Syns.: Entomophthora anisopliae Metsch. Ztschr. Kais.
Landw. Gesell. f.
Neurussland, Odessa, pp.
21-50. 1879.

Syns.: Isaria destructor Metsch. Carus Zool. Anz., 3:

44-47. 1880.

Oospora destructor (Metsch.) Delacr. Soc. Mycol.

de France Bul. 9: 260-264.

1893.

Penicillium anisopliae (Metsch.) Vuill. Soc. Mycol.

de France Bul. 20: 214-221.

1904.

Hosts: Agriotes manicus (Say):

Anisoplia austriaca Hbst.

Aphodius sp.

Bembecia marginata (Harr.)

Blattidae

Bombyx mori L.

Eyturus unicolor Say

Canthon sp.

Cardiophorus sp.

Chalcodermus aeneus Boh.

Chironomus sp.

Cicadellidae

Coleoptera

Cotinis nitida (L.)

Cryptocercus sp.

Cryptocercus punctulatus Scudd.

Curculio caryae (Horn)

Desmoris fulvus (Lec.)

Diabrotica longicornis (Say)

Diacrisia virginica (F.)

Diaprepes abbreviatus L.

Dynastinae

Elateridae

Epilachna sp.

Eleodes sp.

Forficula auricularia L.

Forficulidae

Heliothis armigera (Hbn.)

Hypera nigrirostris (F.)

Hypera postica (Gyll.)

Hypera punctata (F.)

Lepidoptera

Ligyris turulosus Burm.

Limonius californicus (Mann.)

Ludius cylindriciformis (Hbst.)

Metamasius hemipterus (L.)

Monocrepidius lividus (Deg.)

Ormenis pygmaea F.

Pantomorus leucoloma (Boh.)

Phyllophaga sp.

Phyllophaga anxia Lec.

Phyllophaga citri Smyth

Maine,* Nova Scotia

P. R.

Wash.

N. J.

Ga.*

Va.*

Canal Zone*

Ala.

Md.*

Ala.

Ind.

Colo.

P. R.*

Oreg.

Ohio

Wash.*

N. J., Va.*

Va.*

Va.

S. Dak.

P. R.

Maine*

P. R.

Pa.*

P. R.

Ala.

Maine, N. C., P. R.

Canada

P. R.

METARRHIZIUM ANISOPLIAE (Continued)

Hosts: Phyllophaga drakii Kby.	
Phyllophaga fusca (Froel.)	Canada
Phyllophaga futilis Lec.	
Phyllophaga guianica Smyth	P. R.
Phyllophaga portoricensis Smyth	P. R.
Phyllophaga rugosa (Melsh.)	Canada
Phyllophaga vandinei Smyth	P. R.
Phytalus apicalis Blanch.	P. R.
Popillia japonica Newm.	N. J., Pa.
Rhagoletis completa Cress.	Calif.
Samia cecropia (L.)	
Scapteriscus acletus R. & H.	Fla.
Scarabaeidae	P. R.
Strataegus sp.	P. R.
Strataegus barbigerus Chapin	P. R.
Strataegus quadrifoveatus Beauv.	P. R.
Tenebrionidae	Pa.*
Tiphia inornata Say	P. R.
Tomaspis postica (Walk.)	
Tomaspis saccharina Dist.	West Indies

METARRHIZIUM ANISOPLIAE f. MAJOR Johnston P. R. Insular
Expt. Sta. Bul.
10: 26. 1915.

Host: Magicicada septendecim (L.) D. C., Md., Va.*

METARRHIZIUM BRUNNEUM Petch (?) Brit. Mycol. Soc. Trans.
19: 189. 1935.

Host: Limonius infuscatus Mots. Oreg.*

MICROCERA SP.

Hosts: Aonidia bullata Green	
Aonidia crenulata Green	
Aspidiotus canelliae Sign.	
Chrysomphalus dictyospermi (Morg.)	Honduras
Dialeurodes citri (Ashm.)	
Dialeurodes citrifolii (Morg.)	
Lepidosaphes beckii (Newm.)	Fla., Panama*

MICROCERA AURANTIICOLA Petch Brit. Mycol. Soc. Trans.
7: 158-159. 1921.

Imperfect stage of Sphaerostilbe aurantiicola (Derk.
& Dr.) Petch

Hosts: Unidentified hosts	Fla., Ga.
Aspidiotus sp.	Dominican Republic
Chrysomphalus aonidum (L.)	Fla.
Lepidosaphes beckii (Newm.)	Fla.

MICROCERA COCCOPHILA Desm. Ann. Sci. Nat. (ser. 3)
10: 539. 1848.

Imperfect stage of Sphaerostilbe flammea Tul.

Hosts: Unidentified hosts

Fla., Ga., La., Mass.,
Pa., S. C., Tex., Cuba,
P. R.

Aonidiella aurantii (Mask.).

Aspidiotus perniciosus Comst..

Chrysomphalus aonidum (L.).

La.*

Chrysomphalus dictyospermi (Morg.).

La.*

Chrysomphalus tenebricosus (Comst.).

Va.*

Fiorinia fioriniae (Targ.).

Ischnaspis longirostris (Sign.).

Lepidosaphes beckii (Newm.).

Fla., La.*

Lepidosaphes gloverii (Pack.).

Lepidosaphes lasianthis (Green)

Lepidosaphes pallida (Green)

Pseudaonidea duplex (Ckll.).

La.*

Selenaspidis articulatus (Morg.).

Microcera curta Sacc. See Fusarium epicoccum McAlp.

MICROCERA FUJIKUROI Miyabe & Sawada Tohoku Imp. Univ.
Col. Agr. Jour. Sapporo
5: 83-84. 1913.

Syn.: Pseudomicrocera henningsii (Koord.) Petch Brit.
Mycol. Soc. Trans. 7:
100-106. 1921.

Imperfect stage of Nectria diploa Berk. & Curt.

Hosts: Aonidiella aurantii (Mask.).

Aspidiotus sp. (Sec. Petch)

Chrysomphalus aonidum (L.)

Fla., P. R.

Chrysomphalus obscurus (Comst.).

Fla.

Chrysomphalus tenebricosus (Comst.).

Fla.

Coccidae

P. R.

Ischnaspis longirostris (Sign.).

P. R.*

Lepidosaphes beckii (Newm.).

Fla., P. R.

Selenaspidis articulatus (Morg.).

P. R.

Microcera parlatoria E. Trabut. See Fusarium epicoccum McAlp.

Microcera rectispora Cke. & Mass. See Tetracrium coccicolum
Hoehn.

Microcera tonduzii Pat. See Fusarium epicoccum McAlp.

MONILIA PENICILLIOIDES Delacr. Soc. Mycol. de France,
Bul. 13: 114. 1897.

Host: Scarabacidae

MONILIOPSIS RIGIDA Petch Brit. Mycol. Soc. Trans. 11:
258. 1926.

Host: Acarina

Fla.*

MUCOR SP.

Hosts: Anastrepha mombinpraeoptans Sein
Magicicada septendecim (L.)

Fla.*

Va.*

MUCOR RACEMOSUS Fres. Beitr. Mykol., p. 12. 1850.

Hosts: Acrididae?

Anastrepha ludens (Loew)

Mexico*

MYRIANGIUM ^{1/} ASTERINOSPORUM (Ell. & Ev.) Miller, Mycologia
32: 593. 1940.

Syn.: Cenangium asterinosporum Ell. & Ev. Torrey Bot.

Club Bul. 10: 76. 1883.

Host: Coccidae

Ala., Conn., Ga.,
Iowa, Md., Mass., N. C.,
N. J.,* N. Y., Pa., W. Va.,
Canada

Myriangium curtisii Mont. & Berk. See M. duriaei
Mont. & Berk.

MYRIANGIUM DURIAEI Mont. & Berk. Journ. Bot. [London]
4: 72. 1845.

Syn.: Myriangium curtisii Mont. & Berk. Ann. Sci.

Nat. (ser. 3) 11:

245. 1849.

Hosts: Aspidiotus perniciosus Comst.

Fla.

Aulacaspis pentagona (Targ.)

Fla.

Chionaspis sp.

Va.*

Chionaspis citri Comst.

Fla.,* Cuba,* P. R.

Chionaspis sylvatica Sanders

Chrysomphalus obscurus Comst.

La.*

Coccidae

Ala.,* Calif.,* Del.,
Fla.,* Ga., Md.,* Miss.,*
Mo., N. C.,* N. Y.,* Pa.,*
S. C., S. Dak., Tenn., Va.,*
W. Va.,* Cuba, Canada, Dominican
Republic, Isle of Pines, Panama
Fla., Barbados, Dominican
Republic, P. R.
P. R.

Howardia biclavis (Comst.)

Lepidosaphes beckii (Newm.)

Lepidosaphes gloverii (Pack.)

Lepidosaphes ulmi (L.)

Odonaspis pimentae Newst.

Jamaica

Parlatoria pergandii Comst.

^{1/} The taxonomy observed in this genus is that followed by Miller in his monograph on "The genus Myriangium in North America."

MYRIANGIUM FLORIDANUM Hoehn. Akad. der Wiss. Wien, Math.-Nat. Kl. Sitzber. 118: 354. 1909.

Hosts: Chionaspis citri Comst.

Fla., * Mo.,
Cuba*

Coccidae

Ala., Fla., La., Miss.,
Cuba, P. R.
Ala., Fla.

Lepidosaphes beckii (Newm.)

MYRIANGIUM TUBERCULANS Miles Mycologia 14: 80. 1922.

Host: Coccidae

Ala., Ga., Miss., *
southern U. S.

Nectria aglaeothele Berk. & Curt. See Sphaerostilbe flammae Tul.

Nectria coccicola Ell. & Ev. See Podonectria coccicola (Ell. & Ev.) Petch

NECTRIA DIPLOA Berk. & Curt. Linn. Soc. Cuba Jour. 10: 378. 1868.

Perfect stage of Microcera fujikuroi Miyabe & Sawada

Hosts: Aonidiella aurantii (Mask.)

Tex.*

Chrysomphalus aonidum (L.)

Fla.

Chrysomphalus obscurus (Comst.)

Fla.

Chrysomphalus tenebriosus (Comst.)

Ischnaspis longirostris (Sign.)

Fla.

Lepidosaphes beckii (Newm.)

Tex.*

Selenaspis articulatus (Morg.)?

Nectria tuberculariae Petch. See Nectria vilis (Syd.) Petch

NECTRIA VILIS (Syd.) Petch Brit. Mycol. Soc. Trans. 10: 191. 1925.

Syns.: Hypocrella vilis Syd. Ann. Mycol. 15: 215. 1917.

Nectria tuberculariae Petch Brit. Mycol. Soc. Trans. 7: 157. 1921.

Only imperfect stage reported in North America.

Nomuraea prasina Maublanc. See Spicaria prasina (Maublanc) Saw.

Oospora destructor (Metsch.) Delacr. See Metarrhizium anisopliae (Metsch.) Sor.

OPHIOCORDYCEPS ACICULARIS (Rav.) Petch Brit. Mycol. Soc. Trans. 18: 58-61. 1933.

Syns.: Cordyceps acicularis Rav. Linn. Soc. Jour. 1: 158. 1857.

Cordyceps carolinensis Berk. & Rav. In Rav. Fungi Carol. exsic. No. 29. 1852.

Cordyceps ravenelii Berk. & Curt. Linn. Soc. Jour. 1: 159. 1857.

Torrubia superficialis Pk. N. Y. State Mus. Rpt. 28: 70. 1875.

OPHIOCORDYCEPS ACICULARIS - (Continued)

Hosts: Coleoptera
Blateridae
Phyllophaga fusca (Froel.)
Undetermined insects

S. C.
S. C., Canada*
Pa., * Canada
N. C., Tenn.

OPHIOCORDYCEPS CALOCEROIDES (Berk. & Curt.) Fetch Brit.

Mycol. Soc. Trans.
18: 63-64. 1933.

Syns.: Cordyceps caloceroides Berk. & Curt. Linn. Soc.
Jour. 10: 375-376. 1863.
Cordyceps wittii P. Henn. Engl. Bot. Jahrb. 23:
539. 1897.

Host: Hexapoda

Cuba

OPHIOCORDYCEPS CLAVULATA (Schw.) Petch Brit. Mycol. Soc.

Trans. 18: 53. 1933.

Syns.: Sphaeria clavulata Schw. Amer. Phil. Soc. Trans.
(n. ser.) 4: 188. 1832.

Cordyceps pistillariaeformis Berk. & Br. Ann. Nat.
Hist. (ser. 3) 13. 1861.

Cordyceps clavulata (Schw.) Ell. In Ell. & Ev. North
Amer. Pyren. 61. 1892.

Perfect stage of Hirsutella lecanicola (Jaap) Petch

Hosts: Coccidae

D. C., N. Dak.,
N. H., * Vt., Va.,
Canada*

Lecanium sp.

Ind., Mich., N. Dak.,
N. J., N. Y., Wis.

Lecanium corni Bouche

D. C.

Lecanium fletcheri (Ckll.)

N. Y.

Lecanium nigrofasciatum Perg.

Lecanium quercifex Titch

Vt., * Canada

OPHIOCORDYCEPS LUMBERTI (Robin) Petch Brit. Mycol. Soc.

Trans. 19: 172. 1935.

Syns.: Cordyceps hurberti Robin In Saussure Mon. Guepes
Soc. pp. CLXIV & 39.
1853-8.

Perfect state of Hirsutella saussurei (Cke.) Speare

Host: Vespidae

Ophiocordyceps macularis Mains. See Cordyceps macularis Mains.

OPHIOCORDYCEPS PELTATA (Wakef.) Petch Brit. Mycol. Soc. Trans.

16: 74. 1931.

Syns.: Cordyceps peltata Wakef. Kew Roy. Bot. Gard Bul.
Misc. Inform. 1916: 74.
1916.

Host: Cryptorhynchus sp.

OPHIOCORDYCEPS UNILATERALIS (Tul.) Petch Brit. Mycol. Soc.

Trans. 16: 74. 1931.

Syns.: Cordyceps unilateralis (Tul.) Sacc. Syll. Fung.

2: 570. 1883.

Torrubiella unilateralis Tul. Sel. Carp. Fung.

3: 18. 1865.

Host: Formicidae

Maine, Mich., Miss.,*
N. C., Cuba*

Ophionectria coccicola (Ell. & Ev.) Berl. & Vogl. See

Podonectria coccicola

(Ell. & Ev.) Petch

PENICILLIUM SP.

Hosts: Epilachna varivestis Muls.

Heliothis armigera (Hbn.)

Paradexodes epilachnae Ald.

Mass., Ohio
Va.
Ohio

PENICILLIUM ALBELLUM (Mass.) Petch Brit. Mycol. Soc. Trans.

16: 210. 1932.

Syn.: Cordyceps albella Mass. Ann. Bot. 9: 39. 1895.

Host: Gryllidae

Cuba

PENICILLIUM LUTEUM (series) Thom. The Penicillia, p. 479.

1930.

Host: Diatraea saccharalis (F.)

Cuba

PENICILLIUM BREVICAULE Sacc. Michelia 2: 547. 1882.

Host: Nygmia phaeorrhoea (Donov.)

PENICILLIUM CYCLOPIUM Westling Arch. f. Botanik 11: 90. 1911.

Host: Byturus unicolor Say

Wash.*

PENICILLIUM WAKSMANI Zaleski Polon. Acad. des Sci. Math. et

Nat. Bul. (ser. B) 468.

1927.

Host: Coleoptera

D. C.*

PODONECTRIA COCCICOLA (Ell. & Ev.) Petch Brit. Mycol. Soc.

Trans. 7: 146. 1921.

Syns.: Nectria coccicola Ell. & Ev. Jour. Mycol. 2: 39.

1886.

Ophionectria coccicola (Ell. & Ev.) Berl. & Vogl.

In Sacc. Syll. Fung. Add.

218. 1886.

Scoleconectria coccicola (Ell. & Ev.) Seaver Mycologia

1: 197. 1909.

Perfect stage of Tetracrium coccicolum Hoehn.

PODONECTRIA COCCICOLA - (Continued)

Hosts: Aspidiotus perniciosus Comst.
Chionaspis citri Comst.
Coccidae

Lepidosaphes beckii (Newm.)

Lepidosaphes gloverii (Pack.)

Lepidosaphes sp.

Parlatoria pergandii Comst.

Fla.
Cuba, P. R.
Fla., * La., * Costa Rica, *
Cuba*
Fla., * La., * Miss., *
Cuba, Dominican Republic,
P. R.*
Fla.
Cuba
Fla.

Pseudomicrocera henningsii (Koorders) Petch. See
Microcera fujikuroi
Miyabe & Sawada.

RHINOTRICHUM DEPAUPERATUM Charles Mycologia 32: 540. 1940.

Host: Paratetranychus yothersi McG.

Fla.*

RHIZOPUS NIGRICANS Ehrenb. Nova Acta Acad. Caes.

Leopaldina 10: 198. 1820.

Host: Sphingidae

Va.

SAPROLEGNIA.

Species of this genus are given in lists of entomogenous fungi,
but they are not recognized in North America as truly parasitic.

SAPROLEGNIA FERAX (Gruith) Thuret Ann. Sci. Nat. (ser. 3)
14: 230. 1850.

Syn.: Saprolegnia thureti DBy. Senckenb. Naturf. Gesell.
Abhandl. 12: 102. 1881.

Hosts: Diptera
Formicidae
Sphinx sp.

SAPROLEGNIA KAUFMANNIANA Pieters Bot. Gaz. 60: 488. 1915.

Host: Diptera

SAPROLEGNIA MONOICA Pringsh. Jahrb. f. Wiss. Bot. 1: 292. 1858.

Hosts: Diptera
Muscidae

SAPROLEGNIA MONOICA Pringsh. var. VEXANS Pieters Bot. Gaz.
60: 489. 1915.

Host: Diptera

Saprolegnia thureti DBy. See S. ferax (Gruith) Thuret.

SCLERODERRIS GIGASPORA Mass. Kew Roy. Bot. Gard. Bul.,
Misc. Inform. 1910:
3. 1910.

Probably Podonectria coccicola (Ell. & Ev.) Petch Brit.
Mycol. Soc. Trans. 7:
149. 1921.

Host: *Lepidosaphes beckii* (Newm.)

Barbados

Scoleconectria coccicola (Ell. & Ev.) Seaver. See Podonectria coccicola (Ell. & Ev.) Petch.

SCORIAS SPONGIOSA (Schw.) Fr. System. Mycol. 3: 291.
1832.

D. C., Canada

Syn.: Botrytis spongiosa Schw. Naturf. Gesell. zu
Leipzig 1: 127. 1822.

Associated with Prociphilus imbricator (Fitch) and
Prociphilus tessellatus (Fitch)

SEPTOBASIDIUM

According to Couch (see "The Genus Septobasidium"), all species of Septobasidium so far discovered are found on living plants in association with scale insects. Although a true parasitization of the insects often exists, there is also an interesting symbiotic relation of the fungus and insect. The fungus is not only dependent on the insects for food but also as a means of distribution. On the other hand, the scale insects are protected by the fungus against unfavorable extremes of heat, dryness, or cold, but more especially from insect parasites. It has been shown (Couch) that the thinner the fungus roof over the scale the greater is the penetration of the ovipositor of certain wasps.

SEPTOBASIDIUM ALNI Torrend Broteria (scr. Bot.) 11: 84. 1913;

Couch, The Genus Septobasidium,
p. 150. 1938.

Hosts: *Aspidiotus ancylus* (Putn.)

S. C.

Aspidiotus diffinis Newst.

S. C.

Aspidiotus forbesi Johns.

S. C.

Aspidiotus osborni Newm. & Ckll.

S. C.

Chrysomphalus obscurus (Censt.)

S. C.

Coccidae

Ga., N. C., S. C.*

Cryptophyllaspis liquidambaris Kot.

S. C.

SEPTOBASIDIUM ALNI var. SQUAMOSUM Couch Elisha Mitchell Sci.

Soc. Jour. 51: 35. 1935.

Host: *Cryptophyllaspis liquidambaris* Kot.

S. C.

SEPTOBASIDIUM ALVEOLATUM Couch Elisha Mitchell Sci. Soc.

Jour. 44: 253. 1929; Couch,

The Genus Septobasidium,

p. 216. 1938.

Associated with Coccidae

Jamaica*

SEPTOBASIDIUM APICULATUM Couch Elisha Mitchell Sci. Soc. Jour.

51: 62. 1935; Couch, The

Genus Septobasidium, p. 106.

1938.

Ark., Fla.,

N. C.,* La., S. C., Va.

SEPTOBASIDIUM APIICULATUM - (Continued)

Hosts: *Aspidiotus encylus* (Putn.)
Aspidiotus diffinis Newst.
Aspidiotus forbesi Johns.
Aspidiotus juglans-regiae Comst.
Aspidiotus osborni Newst. & Ckll.
Chrysomphalus tenebricosus (Comst.)
Parlatoria proteus (Curt.)

N. C.*

SEPTOBASIDIUM ARBOREUM (Couch) Boed. & Stein. Buitenzorg
 Jard. Bot. Bul. (ser. 3)
 11: 163. 1931; Couch, The
 Genus Septobasidium, p.
 131. 1938.

Syn.: Helicobasidium arboreum Couch Elisha Mitchell Sci.
 Soc. Jour. 44: 257. 1929.

Associated with Coccidae.

Jamaica

SEPTOBASIDIUM AREOLATUM Couch Elisha Mitchell Sci. Soc.
 Jour. 44: 248; Couch, The
 Genus Septobasidium, p.
 88. 1938.

Associated with Coccidae

Jamaica

SEPTOBASIDIUM ATRATUM Pat. Soc. Mycol. de France Bul. 16:
 181. 1900; Couch, The
 Genus Septobasidium, p.
 143. 1938.

Host: *Aspidiotus* sp.

Guadeloupe

SEPTOBASIDIUM ATROPUNCTUM Couch Elisha Mitchell Sci. Soc.
 Jour. 44: 251. 1929;
 Couch, The Genus Septo-
basidium, p. 190. 1938.

Host: Coccidae

Jamaica

SEPTOBASIDIUM BOGORIENSE Pat. Monsunia 1: 138. 1900;
 Couch, The Genus Septobasidium,
 p. 213. 1938.

Host: Coccidae

Panama, St. Lucia

SEPTOBASIDIUM BURTHII Lloyd Mycol. Writings 7: 1286. 1924;
 Couch, The Genus Septo-
basidium, p. 168. 1938.

Ala.,* D. C.,*
 Fla.,* Ga.,* Ky.,*
 La.,* Miss.,* N. C.,*
 S. C., Tex.*

(*S. retiforme* of American authors)

Hosts: *Aspidiotus osborni* Newm. & Ckll.
Chrysomphalus obscurus (Comst.)

SEPTOBASIDIUM BURTII Lloyd var. ACERINUM Couch The
Genus Septobasidium,
p. 171. 1938.

Host: Coccidae?

N. C.

SEPTOBASIDIUM CANESCENS Burt. Mo. Bot. Gard. Ann. 3: 342.
1916; Couch, The Genus
Septobasidium, p. 107.
1938.

Host: Mycetococcus ehrhorni (Ckll.)

Calif.

SEPTOBASIDIUM CARESTIANUM Bres. Malpighia 11: 254. 1897;
Couch, The Genus
Septobasidium, p.
155. 1938.

Host: Chionaspis corni Cooley

Ontario*

SEPTOBASIDIUM CASTANEUM Burt. Mo. Bot. Gard. Ann. 3:
330. 1916; Couch,
The Genus Septo-
basidium, p. 147. 1938.

Hosts: Aspidiotus forbesi Johns.
Aspidiotus herculeanus Ckll. & Hadden
Coccidae

N. C.
Fla.

Ala., Fla., Ga., La.,
Miss., N. C.,* S. C.*

SEPTOBASIDIUM CIRRATUM Burt. Mo. Bot. Gard. Ann. 3:
334. 1916; Couch,
The Genus Septo-
basidium, p. 256.
1938.

Host: Coccidae

Cuba

SEPTOBASIDIUM COKERI Couch Elisha Mitchell Sci. Soc.
Jour. 51: 40. 1935;
Couch, The Genus Septo-
basidium, p. 138. 1938.

Hosts: Aspidiotus osborni Newm. & Ckll.
Coccidae

Fla.
Fla., N. C.,* N. J.,*
Tenn.,* Va.*

SEPTOBASIDIUM CONIDIOPHORUM Couch The Genus Septobasidium,
p. 262-3. 1938.

Hosts: Coccidae
Lepidosaphes beckii (Newm.)

S. C.,* Tex.,* Cuba
Fla.

SEPTOBASIDIUM CREMEUM Couch Elisha Mitchell Sci. Soc.
Jour. 51: 46. 1935;
Couch, The Genus Septo-
basidium, p. 227. 1938.

Hosts: Aspidiotus juglans-regiae Comst.
Coccidae
Cryptophyllaspis liquidambaris Kot.

Fla.*
Fla.*
Fla.*

SEPTOBASIDIUM CURTISII (Berk. & Desm.) Boed. & Stein.

Buitenzorg Jard. Bot.
Bul. (ser. 3) 11: 181.
1931; Couch, The Genus
Septobasidium, p. 164.
1938.

Syn.: Glenospora curtisii Berk. & Desmaz. Roy. Hort. Soc.
Jour. 4: 243. 1849.

Widespread

Hosts: Aspidiotus sp.
Chionaspis sp:
Chionaspis gleditsiae Sanders
Chionaspis sylvatica Sanders
Chrysomphalus obscurus (Comst.)
Coccidae

N. J.

N. J.

Ala.,* Ark., Fla.,*
Ga.,* La.,* Md.,* Miss.,*
N. C.,* N. J.,* S. C., Va.,*
Guadeloupe, Guatemala

SEPTOBASIDIUM FILIFORME Couch Elisha Mitchell Sci.

Soc. Jour. 51: 49.
1935; Couch, The Genus
Septobasidium, p. 205.
1938.

Hosts: Coccidae

N. C.,* Va.

SEPTOBASIDIUM FRAGILE Couch The Genus Septobasidium, p.
196. 1938.

Associated with Coccidae

Jamaica

Septobasidium frustulosum (Berk. & Curt.) Pat. See S.
rhabarbarinum (Mont.)
Bres.

SEPTOBASIDIUM FUMIGATUM Burt. Mo. Bot. Gard. Ann. 3: 340.

1916; Couch, The Genus
Septobasidium, p. 180.
1938.

Hosts: Aspidiotus sp.
Coccidae

Fla.,* Ga., La.,
S. C.,* Miss.*

Chrysomphalus tenobricosus (Comst.)

SEPTOBASIDIUM FUSCUM Couch Elisha Mitchell Sci. Soc. Jour.

51: 15. 1935; Couch, The
Genus Septobasidium, p.
191. 1938.

Host: Aspidiotus diffinis Newst.

La., Miss.*

- SEPTOBASIDIUM GRANDISPORUM Couch Elisha Mitchell Sci.
Soc. Jour. 51: 72. 1935;
Couch, The Genus Septo-
basidium, p. 79. 1938.
Host: Chrysomphalus obscurus (Const.) S. C.*
- SEPTOBASIDIUM GRISEUM Couch The Genus Septobasidium, p.
98. 1938.
Host: Coccidae Costa Rica, Cuba,
Dominican Republic
- SEPTOBASIDIUM HESLERI Couch Elisha Mitchell Sci. Soc.
Jour. 51: 54. 1935;
Couch, The Genus Septo-
basidium, p. 117. 1938.
Host: Chionaspis gleditsiae Sanders Tenn.
- SEPTOBASIDIUM JAMAICAENSE Burt Mo. Bot. Gard. Ann. 3: 333.
1916; Couch, The Genus
Septobasidium, p. 81. 1938.
Host: Coccidae Jamaica*
- SEPTOBASIDIUM LACUNOSUM Couch The Genus Septobasidium, p.
291. 1938.
Host: Coccidae Costa Rica
- SEPTOBASIDIUM LANGLOISII Pat. Soc. Mycol. de France Bul. 16:
54. 1900; Couch, The Genus
Septobasidium, p. 98. 1938.
Hosts: Aspidiotus sp. Fla.,* La.,
Coccidae Miss.
La.,* Miss.,* Cuba*
Common in Gulf Coast States
- SEPTOBASIDIUM LEPIDOSAPHIS Couch Elisha Mitchell Sci.
Soc. Jour. 51: 35.
1935; Couch, The Genus
Septobasidium, p. 146.
1938.
Host: Lepidosaphes beckii (Newm.) Fla.
- SEPTOBASIDIUM LEPRIEURII (Mont.) Pat. Soc. Mycol. de France
Bul. 16: 55. 1900; Couch,
The Genus Septobasidium,
p. 174. 1938.
Syn.: Corticium lepricurii Mont. Ann. Sci. Nat. (ser. 4)
1: 140. 1854.
Hosts: Aspidiotus diffinis Newst.
Aspidiotus herculeanus Ckll. & Haddon Fla.
Coccidae Fla., Miss., S. C.,
Guadeloupe

- SEPTOBASIDIUM LEPROSUM Couch Elisha Mitchell Sci. Soc.
 Jour. 51: 42. 1935;
 Couch, The Genus Septo-
basidium, p. 162. 1938. La., N. C., S. C.,
 Va.
- Host: Coccidae
- SEPTOBASIDIUM LILACINOALBUM Couch Elisha Mitchell Sci.
 Soc. Jour. 51: 56.
 1935; Couch, The Genus
Septobasidium, p. 114.
 1938.
- Host: Chionaspis gleditsiae Sanders N. C., S. C.
- SEPTOBASIDIUM LINDERI Couch The Genus Septobasidium, p.
 104. 1938.
- Host: Coccidae Mass.*
- SEPTOBASIDIUM MARIANI Bres. Ann. Mycol. 1: 24. 1903;
 Couch, The Genus Septo-
basidium, p. 134. 1938.
- Host: On several species of Coccidae Ark., La.,* N. C.,
 N. J.,* S. C., Tenn.
- SEPTOBASIDIUM MEXICANUM Sydow Ann. Mycol. 18: 154.
 1920; Couch, The
 Genus Septobasidium,
 p. 231. 1938.
- Host: Coccidae Mexico
- SEPTOBASIDIUM PANNOSUM (Fr.) Bres. Ann. Mycol. 14: 242.
 1916.
- Syn.: Corticium pannosum Fr. Nov. Symb. p. 114. 1851;
 Couch, The Genus Septo-
basidium, p. 235. 1938.
- Host: Coccidae Mexico
- SEPTOBASIDIUM PATOUILLARDII Burt Mo. Bot. Gard. Ann. 3:
 332. 1916; Couch, The
 Genus Septobasidium, p.
 85. 1938.
- Host: Chionaspis gleditsiae Sanders Fla., La., N. C.,
 S. C.
- Coccidae Ala.,* La.,* Miss.*
- SEPTOBASIDIUM PECKII Couch Elisha Mitchell Sci. Soc.
 Jour. 51: 75. 1935;
 Couch, The Genus Septo-
basidium, p. 274. 1938.
- Host: Chionaspis sp. N. Y.

SEPTOBASIDIUM PEDICELLATUM (Berk. & Curt.) Pat. Jour. de Bot. 6: 61, 1892; Couch, The Genus Septobasidium, p. 215. 1938.

Syn.: Thelephora pedicellata Berk. & Curt. Wright's Cuban exsic. No. 798, non Schw.

Hosts: Aspidiotus sp.
Lepidosaphes beckii (Nawn.)

Cuba

SEPTOBASIDIUM PILOSUM Doed. & Stein. Arch. Theocult. 4: 48. 1930; Couch, The Genus Septobasidium, p. 261. 1938.

Hosts: Coccidae
Leucaspis indica Marl.

Fla., La.
Fla.

SEPTOBASIDIUM PINICOLA Snell Mycologia 14: 55-60. 1922; Couch, The Genus Septobasidium, p. 178. 1938.

Host: Chermes sp.

Idaho, Maine,*
Mass.,* N. H.,*
N. C.,* N. Y.,*
Pa.*

SEPTOBASIDIUM PSEUDOPEDICELLATUM Burt Mo. Bot. Gard. Ann. 3: 327. 1916; Couch, The Genus Septobasidium, p. 132. 1938.

Host: Coccidae

Ala.,* Fla.,* Ga.,*
Ky.,* La.,* Mich.,* N. C.,
Pa., Miss.,* R. I.,* S. C.,
Tenn.,* Va.,* W. Va.,* Wis.,
Mexico

SEPTOBASIDIUM PURPUREUM Couch Elisha Mitchell Sci. Soc. Jour. 44: 255. 1929; Couch, The Genus Septobasidium, p. 80. 1938.

Host: Coccidae

Jamaica*

SEPTOBASIDIUM RETIFORME (Berk. & Curt.) Pat. Soc. Mycol. de France Bul. 16: 55. 1900. Couch, The Genus Septobasidium, p. 90. 1938.

Syn.: Thelephora retiformis Berk. & Curt. Linn. Soc. Bot. Jour. 10: 330. 1868.

Host: Coccidae

Cuba*

Septobasidium retiforme of American authors. See S. burtii Lloyd.

SEPTORASIDIUM RHABARBARINUM (Mont.) Pres. Ann. Mycol.
14: 240. 1916; Couch,
The Genus Septobasidium,
p. 122. 1938.

Syn.: Daedalca rhabarbarinum Mont. Ann. Sci. Nat. (ser.
2) 13: 205. 1840.

Septobasidium frustulosum (Berk. & Curt.) Pat.
Soc. Mycol. de France
Bul. 10: 79. 1894.

Hosts: Aspidiotus diffinis Newst.
Coccidae

Jamaica
Cuba, Grenada,
Guadeloupe, Guatemala,
Jamaica, Mexico, Nicaragua,
Panama

SEPTORASIDIUM RUGULOSUM Couch Elisha Mitchell Sci. Soc.
Jour. 51: 59. 1935;
Couch, The Genus Septo-
basidium, p. 129. 1938.

Host: Chionaspis gloditsiae Sanders

Fla., La., S. C.*

SEPTORASIDIUM SABALIS Couch Elisha Mitchell Sci. Soc.
Jour. 51: 69. 1935;
Couch, The Genus
Septobasidium, p. 93.
1938.

Host: Constockiella sabalis (Const.)

La.*

SEPTORASIDIUM SABAL-MINOR Couch Elisha Mitchell Sci. Soc.
Jour. 51: 19. 1935;
Couch, The Genus Septo-
basidium, p. 138. 1938.

Host: Constockiella sabalis (Const.)

Fla.*

SEPTORASIDIUM SCHWEINITZII Durt. Mo. Bot. Gard. Ann. 3: 324.
1916; Couch, The Genus
Septobasidium, p. 112.
1938.

Host: Chionaspis gloditsiae Sanders

N. C.,* S. C.

SEPTORASIDIUM SEPTORASIDIODES (P. Henn.) Lloyd Mycol.
Writings 5: 722. 1917;
Couch, The Genus Septo-
basidium, p. 254. 1938.

Syn.: Hymenochaete septorasioides P. Henn. Hedwigia
43: 172. 1904.

Host: Associated with Coccidae

Jamaica

SEPTOBASIDIUM SINUOSUM Couch Elisha Mitchell Sci. Soc.

Jour. 51: 65. 1935;

Couch, The Genus Septobasidium, p. 100. 1938.

Host: Aspidiotus osborni Newm. & Oehl.

Fla., La., Miss.,
N. C., S. C.*

SEPTOBASIDIUM SIPARIUM (Berk. & Curt.) Bres. Ann. Mycol.

12: 59. 1920; Couch,

The Genus Septobasidium, p. 179. 1938.

Syn.: Hymenochaete siparia Berk. & Curt. Linn. Soc. Bot.

Jour. 10: 334. 1868.

Host: Coccidae

Cuba

SEPTOBASIDIUM SPONGIUM (Berk. & Curt.) Pat. Soc. Mycol. de

France Bul. 16: 181.

1900; Couch, The Genus Septobasidium, p. 187.
1938.

Syn.: Thelephora spongia Berk. & Curt. Linn. Soc. Bot.

Jour. 10: 330. 1868.

Hosts: Chionaspis citri Const.
Coccidae

P. R.
Fla.,* Cuba,* Dominican
Republic,* Mexico,* P. R.

Lepidosaphes beckii (Newm.)

Pinnaaspis minor (Mask.)

SEPTOBASIDIUM STEVENSONI Couch The Genus Septobasidium, pp.

186-7. 1938.

Host: Coccidae

P. R.

SEPTOBASIDIUM SUBLILACINUM (Ell. & Ev.) Burt Mo. Bot. Gard.

Ann. 3: 331. 1916; Couch;

The Genus Septobasidium, p.
279. 1938.

Syn.: Thelephora sublilacina Ell. & Ev. Iowa Univ. Lab. Nat.

Hist. Bul. 4: 67. 1896.

Host: Associated with Aspidiotus sp.

Nicaragua

SEPTOBASIDIUM SYDOWII Couch Elisha Mitchell Sci. Soc. Jour.

51: 47. 1935; Couch,

The Genus Septobasidium,
p. 236. 1938.

Host: On Coccidae

Tex.

SEPTOBASIDIUM TAXODII Couch Elisha Mitchell Sci. Soc. Jour.

51: 48. 1935; Couch,

The Genus Septobasidium,
p. 193. 1938.

Host: Aspidiotus forbesi Johns.

La., P. R.

SEPTOBASIDIUM TENUE Couch Elisha Mitchell Sci. Soc.
 Jour. 51: 58. 1935;
 Couch, The Genus
Septobasidium, p.
 128. 1938.

Hosts: Aspidiotus sp.
 Aspidiotus juglans-regiae Comst.

S. C.*
 Fla., Miss.

SEPTOBASIDIUM TROPICALE Burt Mo. Bot. Gard. Ann. 3:
 326. 1916; Couch,
 The Genus Septobasidium,
 p. 209. 1938.

Host: On Coccidae

Mexico

SEPTOBASIDIUM VERRUCOSUM Couch The Genus Septobasidium,
 p. 257-8. 1938.

Host: On Coccidae

Calif.

SEPTOBASIDIUM WESTONI Couch The genus Septobasidium, p.
 120-1. 1938.

Host: Associated with Diaspis sp.

C. Z., Panama

SEPTOBASIDIUM SP., hybrid between S. castaneum and S.
patouillardii (?)
 Couch, The Genus
Septobasidium, p.
 284-5. 1938.

Host: Associated with Coccidae

Ala.,* La.

SIROSPHAERA CHLOROSTOMA Petch Brit. Mycol. Soc. Trans.
 8: 209. 1923.

Hosts: Aegerita webberi Fawcett on Coccidae
 Aschersonia turbinata Berk. on Coccidae

Fla.*
 Fla.*

SOROSPORELLA UVELLA (Krass.) Gd. Bul. Sci. de la France
 et Belg. (ser. 3) 2:
 81-83. 1889.

Syn.: Tarichium uvella Krass. Soc. Nat. Nouv.-Russie
 Mem. Odessa 2: pt.
 75-112. 1886.

Sorosporella agrotidis Sorok. Centbl. Bakt. u.
 Infekkr. Jahrg. 2.4:
 No. 21, 644. 1888.

Acremonium cleoni Wize. Bul. Internatl. Acad.
 Sci. Cracovie, Cl. Sci.
 Math. and Nat. No. 10.
 713-727. (1904) 1905.

Hosts: Agrotis ypsilon (Rott.)
 Cirphis unipuncta (Haw.)
 Cleonus punctiventris Germ.
 Euxoa tessellata (Harr.)

Md.*

SOROSPORELLA UVELLA (Krass.) Gd. - (Continued)

Hosts: *Feltia subgothica* (Haw.)

Graphiphora c-nigrum (L.)

Heliothis armigera (Hbn.)

Peridroma saucia (Hbn.)

Phalaenidae

Scapteriscus acleatus R. & H.

Mass., * N. J., * Va.*

Mass., * N. J., * Va.*

Eastern U. S., and Canada

Fla.*

Sphaeria clavulata Schw. See *Ophiocordyceps clavulata*

(Schw.) Petch.

SPHAEROSTILBE

Petch's study of *Sphaerostilbe* has shown that *S. coccophila* Tul., according to the specimens cited by the Tulasnes, consists of the perfect stage of one species, "*S. aurantiicola* (Berk. & Br.) Petch, and the imperfect stage (*Microcera coccophila* Desm.) of *S. flammea*." Petch further observes that to differentiate accurately between the two species, *S. aurantiicola* and *S. flammea*, it is necessary to have the perithecial stages, in addition to the imperfect stages, although this may not be strictly true of specimens collected in the tropics. See Petch, Brit. Mycol. Soc. Trans. 7: 109-129. 1921.

SPHAEROSTILBE AURANTIICOLA (Berk. & Br.) Petch Peradeniya, Ceylon,

Roy. Bot. Gard. Ann. 7: 119.

1920. See Petch, Brit. Mycol.

Trans. 7: 158. 1921.

Syns.: *Sphaerostilbe coccophila* Tul. Sel. Fung. Carp. 3: 105.

1865.

Nectria aurantiicola Berk. & Br. Linn. Soc. Jour. 14:

117. 1873.

Perfect stage of *Microcera aurantiicola* Petch

Hosts: *Aonidiella aurantii* (Mask.)

Aspidiotus sp.

Aspidiotus ancylus (Putn.)

Aspidiotus diffinis Newst.

Aspidiotus forbesi Johns.

Aspidiotus hederæ (Vall.)

Aspidiotus lataniae Sign.

Aspidiotus perniciosus Comst.

Asterolecanium pustulans Ckll.

Chionaspis citri Comst.

Chionaspis pinifoliae heterophyllae Cooley

Chrysomphalus aonidium (L.)

Chrysomphalus dictyospermi (Morg.)

Chrysomphalus obscurus (Comst.)

Chrysomphalus tenebricosus (Comst.)

Coccidae

Coccus mangiferae (Green)

Coccus viridis Green

P. R.

Fla., Ga., Dominican Republic

Fla.

La.*

Fla.

Canada, P. R.

Fla., P. R.

Fla., * Ga., * P. R.

P. R.

Panama*

P. R.

Fla., P. R.

Fla., * Isle of Pines,

West Indies

Costa Rica, * Dominican

Republic

Fla.

SPHAEROSTILBE AURANTIICOLA - (Continued)

- Hosts: Comstockiella sabalis Comst. Fla., P. R.
 Dialeurodes citri (Ashm.) Fla.
 Dialeurodes citrifolii (Morg.)
 Diaspis sp. La., Miss., P. R.
 Howardia biclavis (Comst.)
 Ischnaspis longirostris (Sign.)
 Lepidosaphes sp. Dominican Republic
 Lepidosaphes beckii (Newm.) Fla.,* Ga., P. R.
 Lepidosaphes gloveri (Pack.) Fla.
 Lepidosaphes ulmi (L.) Fla.,* Miss., Canada,*
 P. R.
 Parlatoria pergandii (Comst.) Fla.*
 Paraltoria proteus Curt. P. R.
 Pinnaaspis minor (Mask.) P. R.
 Pseudococcus citri (Risso)
 Pseudodiaspis yuccae (Ckll.)
 Saissetia oleae (Bern.)
 Selenaspidis articulatus (Morg.) P. R.

Sphaerostilbe coccophila Tul. See S. auranticola (Berk. & Br.) Petch.

SPHAEROSTILBE FLAMMEA Tul. Sel. Fung. Carp. 1: 180. 1861.

Syn.: Nectria aglaothele Berk. & Curt. Grev. 4: 45. 1875.

See Petch, Brit. Mycol.

Soc. Trans. 7: 120. 1921.

Perfect stage of Microcera coccophila Desm.

- Hosts: Chionaspis citri Comst. Panama
 Chrysomphalus obscurus (Comst.) Fla.
 Coccidae Ga., La.,* Mass.,
 N. J.,* Pa., S. C.,
 Tex., Cuba, P. R.

SPICARIA SP.

- Hosts: Heliothis armigera (Hbn.) Conn.
 Icerya purchasi Mask. P. R.*

SPICARIA ALEYRODIS Johnston Soc. Cubana Hist. Nat. Mem.,

"Filipe Poey" 3: 79. 1918.

- Host: Trialeurodes variabilis Quaint. Cuba

SPICARIA CANADENSIS Vuill. Canadian Ent. 57: 97-99. 1925.

- Host: Stilpnotia salicis (L.) Canada, Cuba

SPICARIA FARINOSA (Fr.) Vuill. Rev. Gen. de Bot. 26: 161.

1914.

Syns.: Ramaria farinosa Dicks. Crypt. Brit. 2: 25. 1790.

Isaria farinosa (Dicks.) Fr. System. Mycol. 3: 271.
 1832.

SPICARIA FARINOSA - (Continued)

Hosts: Carpocapsa pomonella (L.) Del.,* Wash.*
 Isia isabella (A. & S.)
 Lepidoptera
 Lygaeonematus erichsonii (Htg.) Canada
 Nephelodes emmedonia (Cram.)
 Phyllophaga sp. Ill.
 Porthetria dispar (L.) Conn.*
 Pyrausta nubilalis (Hbn.) (laboratory experiments) Mass.

SPICARIA GRACILIS Petch Brit. Mycol. Soc. Trans. 16: 241-242. 1932.

Syn.: Coremium gracilis Petch Brit. Mycol. Soc. Trans. 11: 260. 1926.

Hosts: Bruchus pisorum (L.) Oreg.*

SPICARIA HELIOTHIS Charles Phytopathology 28: 897. 1938.

Host: Heliothis armigera (Hbn.) Ill.,* N. J.,* Ohio,* Va.*

SPICARIA JAVANICA Bally Meded. Koffiebessenboek Fonds 6: 147. 1923.

Host: Icerya purchasi Mask. Fla., P. R.

SPICARIA LAXA Petch Brit. Mycol. Soc. Trans. 21: 60-61. 1937.

Host: Coleoptera Maine

SPICARIA PRASINA (Maubl.) Sawada, Descriptive Catalogue of Formosan Fungi, p. 606. 1919.

Syn.: Nomuraea prasina Maubl. Soc. Mycol. de France, Bul. 19: 295-296. 1903.

Host: Anticarsia gemmatilis (Hbn.) Fla.,* La.

SPICARIA RILEYI (Farl.) Charles Mycologia 28: 398-9. 1936.

Syn.: Botrytis rileyi Farl. U. S. Comm. Agr., Rpt. 1883, p. 121. 1884.

Hosts: Anticarsia gemmatilis (Hbn.) Fla.,* Ga.,* Ind.,
 La.,* N. Y., P. R.*
 Autographa brassicae (Riley) D. C., La., Ohio,*
 Dominican Republic
 Cirphis unipuncta (Haw.) Fla.*
 Elateridae Dominican Republic
 Heliothis armigera (Hbn.) Va.*
 Hypera punctata (F.) Va.*
 Laphygma frugiperda (A. & S.) D. C., Fla.,* La.,*
 Ohio, P. R.
 Phalaenidae Cuba
 Plathypena scabra (F.) Ind.,* N. Y.
 Prodenia ornithogalli Guen. Fla.*

SPOROTRICHUM SP.

Hosts: Aphid. sp.
Aspidiotus perniciosus Const.
Chauliognathus pennsylvanicus Deg.
Coccidae
Dialeurodes citri (Ashm.)

Wash.*
Mexico
Wash.*
P. R.*
Fla.*

Sporotrichum araneorum (Cav.) Mass. See Acremonium tenuipes
Petch.

SPOROTRICHUM COLUMNARE Petch Brit. Mycol. Soc. Trans. 19:
186-187. 1935.

Hosts: On an undetermined fungus on cocoons of Araneida.
Cicadellidae

P. R.
Tenn.

Sporotrichum densum Lk. See Beauveria densa (Lk.) Vuill.

Sporotrichum entonophilum Pk. See Beauveria bassiana (Bals.)
Vuill.

SPOROTRICHUM FLAVISSIMUM Lk. Gesell. f. Naturf. Freunde
Sitzber. Berlin 7: 25-45.
1916.

Host: Coleoptera

Sporotrichum larvata Pk. See Beauveria bassiana (Bals.)
Vuill.

Sporotrichum larvicolum Pk. See Beauveria bassiana (Bals.)
Vuill.

SPOROTRICHUM LECANII Pk. N. Y. State Mus. Rpt. 44: 25. 1890.
Host: Lecanium sp.

SPOROTRICHUM MINIMUM Speg. Argentina Soc. Sci. Anal. 13: 24.
1882.

Hosts: Camponotus sp.
Hypera postica (Gyll.)
Polia legitima (Grote)

SPOROTRICHUM PETELOTI (Vincens) Petch Brit. Mycol. Soc. Trans.
21: 63-64. 1937.

Syn.: Beauveria peteloti Vincens Soc. Bot. de France Bul.
(ser. 4) 62: 132-144. 1915.

Host: Cordyceps dipterigena Berk. & Br. on Diptera

N. C.

STEMPHYLIUM SP.

Host: Macrosiphum pisi (Kltb.)

STEMPHYLIUM BOTRYOSUM Wallr. Fl. Crypt. Germ. 2: 300. 1833.

Host: Coccidae

Pa.

STEREOCREA AURANTIACA Petch Brit. Mycol. Soc. Trans. 23:

135. 1939.

Perfect stage of Aschersonia aurantiaca Petch

Host: Paraleyrodes perseae (Quaint.)

Fla.*

Sterigmatocystis nigra v. Tiegh. See Aspergillus niger v. Tiegh.

SYNNEMATIIUM JONESII Speare Mycologia 12: 71-75. 1920.

Hosts: Unidentified host

Cicadellidae

Harpalus sp.

Hemiptera

Mezura emarginata (Say)

Mezura lobata (Say)

Philonthus sp.

D. C.

Calif.

Costa Rica

La.

La.

Maine

Tarichium uvella Krass. See Sorosporella uvella (Krass.)
Gd.

TETRACRIUM COCCICOLUM Hoehn. Akad. der Wiss. Wien, Math.-

Nat. Kl. Sitzber. (abt.

1) 120: 407. 1911.

Syn.: Microcera rectispora Cke. & Mass. Grevillea 16: 4.

1888.

Imperfect stage of Podonectria coccicola (Ell. & Ev.) Petch.

Hosts: Aspidiotus perniciosus (Const.)

Chionaspis citri (Const.)

Coccidae

Fla.

Cuba, P. R.

Fla.,* La.,* Costa Rica,*

Cuba, Dominican Republic

Fla.,* La.,* Miss.,* Cuba,

Dominican Republic,* P. R.*

Lepidosaphes beckii (Newm.)

Lepidosaphes gloverii (Pack.)

Lepidosaphes ulmi (L.)

Parlatoria pergandii Const.

Fla.

Miss.*

Fla.

Thelephora spongia Berk. & Curt. See Septobasidium spongium
(Berk. & Curt.) Pat.

TORRUBIELLA LECANII Johnston Soc. Cubana Hist. Nat. Mem.,

"Filipe Poey" 3: 80. 1918.

Host: Saissetia hemisphaerica (Targ.)

Cuba, P. R.

TORRUBIELLA GIBELLULAE Petch Ann. Mycol. 30: 391. 1932.

Syn.: Cordyceps arachnophila Thax. Bot. Gaz. 57: 310. 1914.

Perfect stage of Gibellula araneorum (Schw.) Syd.

Host: Araneida

Vt.,* Va.,* Cuba, P. R.

TORRUBIELLA PAXILLATA Petch Brit. Mycol. Soc. Trans. 21:
49-50. 1937.

Host: Chrysopidae

N. C., Tenn.

Torrubiella superficialis Pk. See Ophiocordyceps
acicularis (Rav.) Petch.

Torrubiella unilateralis Tul. See Ophiocordyceps unilater-
alis (Tul.) Petch.

Trichoderma konigi Oudem. See T. viride Pers.

Trichoderma lignorum (Tode) Harz. Bul. Soc. Imper. Moscou
44: 116-17. 1871. See
T. viride Pers. ex Fr.

TRICHODERMA VIRIDE Pers. ex Fr. System. Mycol. 3: 215. 1829.
For discussion of this
species complex and its
synonymy see Disby
Brit. Mycol. Soc. Trans.
23: 149-168. 1939.

Hosts: Apis mellifera
Culicidae

Md., Oreg.
Oreg.

TUBERCULARIA COCCICOLA Stevenson P. R. Insular Expt. Sta.
Rpt. 1916-1917: 91-92.
1917.

Syn.: Knyaria coccicola (Stevenson) Cif. Estac. Agron.
Moca Publ. (ser. Bot.)
14: 178. 1929.

Imperfect stage of Nectria vilis (Syd.) Petch.

Hosts: Aspidiotus sp.
Chionaspis citri Const.
Lepidosaphes beckii (Newm.)
Pinnaspis minor (Mask.)

La.,* P. R.*
P. R.
P. R.
P. R.

UREDINELLA COCCIDIOPHAGA Couch Mycologia 29: 665. 1937.

Hosts: Aspidiotus sp.

Fla., S. C.

VERMICULARIA CICADINA Ell. & Kellerm. Jour. Mycol. 3: 126.
1887.

Host: Cicada sp.

Kans.

VERTICILLIUM CINNAMOMEUM Petch Brit. Mycol. Soc. Trans. 16:
233. 1932.

Syn.: Verticillium heterocladium Fawcett non Penz.

Hosts: Aspidiotus destructor Const.

Coccus sp.
Coccus hesperidum L.
Dialeurodes citri (Ashm.)
Dialeurodes citrifolii (Morg.)
Diaspis sp.
Lepidosaphes beckii (Newm.)
Lepidosaphes gloveri (Pack.)
Parlatoria pergandii Const.

Cuba
Fla.,* Cuba,* P. R.
Ala., Fla., Miss.
Fla.
Fla.
Fla.

VERTICILLIUM FULIGINOSUM Petch Brit. Mycol. Soc. Trans.

19: 186. 1935.

Host: Cicadellidae

Panama

Verticillium heterocladium of Fawcett. See Verticillium
cinnamomeum Petch.

VERTICILLIUM HETEROCLADUM Penz. Michelia 2: 462 (1882) =
Cladobotryum heterocladium
(Penz.) Petch. Brit. Mycol.
Soc. Trans. 16: 232. 1932.
According to Petch, not re-
ported in North America.

Verticillium lecanii (Zimm.) Viegas. See Cephalosporium
lecanii Zimm.

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Phil. Soc. Proc. 74: 263-271.

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Mycologia 29: 674-677.

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Elisha Mitchell Sci. Soc. Jour. 55: 117-129.

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1936. La Malattie infettive degli insetti. R. Stazione Bacologica
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mogenous fungi.)

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Agr. Jour. 13: 59-72.

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illus.

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Ceylon, Roy. Bot. Gardens, Ann. 7: 167-278, illus.

-
1923. III. Torrubiella. Brit. Mycol. Soc. Trans. 9: 108-128,
illus.

-
1924. IV. Some Ceylon Cordyceps. L. c. 10: 28-45, illus.

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1926. VIII. Notes on Beauveria. L. c. 10: 244-271, illus.
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1927. XII. Peziotrichum lachnella; Ophionectria coccorum; Volutella epicoccum. L. c. 12: 44-52, illus.
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INSECTS LISTED WITH THEIR ENTOMOGENOUS FUNGI

ACRIDIDAE

Mucor racemosus

ACRONICTA AMERICANA (HARR.)

Cordyceps elongata

Hirsutella gigantea

Isaria brachiata

ACTEBIA FENNICA (TAUSCH.)

Empusa sp.

Empusa virescens

AEOLUS DORSALIS (SAY)

Cordyceps sp.

AGRILUS BILINEATUS (WEB.)

Empusa sphaerosperma

AGRIOTES MANCUS (SAY)

Beauveria bassiana

Metarrhizium anisopliae

AGROTIS BADINODIS GROTE

Beauveria sp.

AGROTIS ORTHOGONIA MORR.

Beauveria sp.

AGROTIS SP.

Empusa grylli

Entomophthora aulicae

AGROTIS YPSILON (ROTT.)

Fusarium sp.

Sorosporella uvella

ALEUROCANTHUS WOGLUMI ASHBY

Aegerita webberi

Aschersonia aleyrodinis

Aschersonia cubensis

Aschersonia goldiana

Aschersonia sp.

Aschersonia turbinata

ALEURODES SP.

Aegerita webberi

Aschersonia sp.

Aschersonia aleyrodinis

Aschersonia columnifera

Aschersonia goldiana

Hypocrella phyllogena

ALEURODICUS CARDINI BACK

Aschersonia aleyrodinis

ALEURODICUS MINIMUS QUAIN.

Aegerita webberi

Aschersonia aleyrodinis

Aschersonia flavo-citrina

ALEURODICUS PIMENTAE LAING

Aschersonia aleyrodinis

ALEUROTHRIXUS HAWARDI (QUAIN.)

Aegerita webberi

Aschersonia aleyrodinis

ALEYRODIDAE

Aschersonia viridans

AMPHIPYRA PYRAMIDOIDES GUEN.

Entomophthora aulicae

ANASTREPHA LUDENS (LOEW)

Mucor racemosus

ANASTREPHA MOMBINPRAEOPTANS SEIN

Fusarium sp.

Mucor sp.

ANASTREPHA SERPENTINA (WIED.)

Aspergillus sydowi

ANISOPLIA AUSTRIACA HBST.

Metarrhizium anisopliae

ANOPHELES QUADRIMACULATUS SAY

Beauveria bassiana

ANTHONOMUS FULVIS LEC.

Beauveria globulifera

ANTICARSIA GEMMATILIS (HBN.)

Fusarium sp.

Spicaria prasina

Spicaria rileyi

AONIDIA BULLATA GREEN

Microcera sp.

AONIDIA CRENULATA GREEN

Microcera sp.

AONIDIELLA AURANTII (MASK.)

Cladosporium sp.

Microcera coccophila

Microcera fujikuroi

Nectria diploa

Sphaerostilbe aurantiicola

APHANUS UMBROSUS (DIST.)

Beauveria globulifera

APHIDIIDAE

Cladosporium sp.

Empusa aphidis

Empusa occidentalis

Empusa planchoniana

Empusa sp.

Entomophthora sp.

Fumago vagans (on honeydew)

APHIS FORBESI WEED

Empusa aphidis

APHIS GOSSYPYII GLOV.

Acrostalagnus aphidum

Cladosporium aphidis

Fusarium sp.

APHIS POMI DEG.

Empusa aphidis
Empusa fresenii

APHIS SAMBUCI L.

Empusa aphidis

APHIS SP.

Acrostalagmus albus
Acrostalagmus aphidum
Cladosporium aphidis
Empusa aphidis
Empusa lageniformis
Empusa thaxteriana
Sporotrichum sp.

APHIS SPIRAECOLA PATCH

Cladosporium aphidis
Empusa fresenii
Empusa sp.

APHODIUS FIMETARIUS (L.)

Beauveria bassiana

APHODIUS SP.

Beauveria globulifera
Metarrhizium anisopliae

APHROPHORA PARALLELA (SAY)

Entomophthora aphrophorae

APION OCCIDENTALE FALL

Aspergillus flavus

APION SP.

Cordyceps sp.

APIS MELLIFERA L.

Aspergillus effusus
Aspergillus flavus
Aspergillus flavus-oryzae
Aspergillus fumigatus
Aspergillus glaucus
Aspergillus nidulans
Aspergillus ochraceus
Aspergillus oryzae
Aspergillus prasinus
Trichoderma viride

ARCTIIDAE

Empusa grylli
Isaria tenuipes

ASPIDIOTUS ANCYLUS (PUTN.)

Septobasidium alni
Septobasidium apiculatum
Sphaerostilbe aurantiicola

ASPIDIOTUS CAMBELLIAE SIGN.

Microcera sp.

ASPIDIOTUS DESTRUCTOR SIGN.

Cephalosporium lecanii
Verticillium cinnamomeum

ASPIDIOTUS DIFFINIS NEWST.

Septobasidium alni
Septobasidium apiculatum
Septobasidium fuscum
Septobasidium lepricourii
Septobasidium rhabarbarinum
Sphaerostilbe aurantiicola

ASPIDIOTUS FORBESI JOHNS.

Septobasidium alni
Septobasidium apiculatum
Septobasidium castaneum
Septobasidium taxodii
Sphaerostilbe aurantiicola

ASPIDIOTUS HEDERAE (VALL.)

Sphaerostilbe aurantiicola

ASPIDIOTUS HERCULEANUS CKLL. & HADDEN

Septobasidium castaneum
Septobasidium lepricourii

ASPIDIOTUS JUGLANS-REGIAE COMST.

Septobasidium apiculatum
Septobasidium cremeum
Septobasidium tenue

ASPIDOTUS LATANIAE SIGN.

Sphaerostilbe aurantiicola

ASPIDIOTUS OSBORNI NEWM. & CKLL.

Septobasidium alni
Septobasidium apiculatum
Septobasidium burtii
Septobasidium cokeri
Septobasidium sinuosum

ASPIDIOTUS PERNICIOSUS COMST.

Fusarium sp.
Microcera coccophila
Myriangium duriae
Podonectria coccicola
Sphaerostilbe aurantiicola
Sporotrichum sp.
Tetracrium coccicolum

ASPIDIOTUS SP.

Fusarium epicoccum
Microcera aurantiicola
Microcera fujikuroi
Septobasidium atratum
Septobasidium curtisii
Septobasidium fumigatum
Septobasidium langloisii
Septobasidium pedicellatum
Septobasidium sublilacimum
Septobasidium tenue
Sphaerostilbe aurantiicola
Tubercularia coccicola
Uredinella coccidiophaga

ASTEROLECANIUM BAMBUSAE BOISD.

Cladosporium sp.

ASTEROLECANIUM PUSTULANS CKLL.

Sphaerostilbe aurantiicola

ATTA SINGULARIS (GUER.)

Aspergillus tanarii

AULACASPIS PENTAGONA (TARG.)

Myriangium duriaei

AUTOGRAPHA BRASSICAE (RILEY)

Beauveria densa

Beauveria globulifera

Empusa sp.

Spicaria rileyi

AUTOMERIS SP.

Beauveria bassiana

BEMBEZIA MARGINATA (HARR.)

Metarrhizium anisopliae

BEMISIA INCONSPICUA (QUINT.)

Aschersonia aleyrodis

BLATTIDAE

Cordyceps amazonica

Metarrhizium anisopliae

BLISSUS HIRTUS MONTD.

Beauveria globulifera

BLISSUS LEUCOPTERUS (SAY)

Beauveria globulifera

Beauveria vexans

Cladosporium aphidis

Empusa aphidis

Empusa sp.

BLISSUS SP.

Empusa aphidis

BOMBYX MORI L.

Beauveria bassiana

Metarrhizium anisopliae

BOTHRIOCERA SP.

Hirsutella saussurei

BRACHYRHINUS SULCATUS (F.)

Fusarium sp.

BREVICORYTE BRASSICAE (L.)

Cladosporium aphidis

Empusa aphidis

BRUCHUS PISORUM (L.)

Beauveria bassiana

Spicaria gracilis

BYTURUS UNICOLOR SAY

Cephalosporium sp.

Metarrhizium anisopliae

Penicillium cyclopium

CALENDRA MAIDIS (CHITTIN.)

Beauveria densa

CALLIPHORA SP.

Empusa americana

Entomophthora bullata

CALLIPHORA VOMITORIA (L.)

Empusa americana

Empusa muscae

CALLIPTERUS TRIFOLII MONELL

Empusa aphidis

CAMNULA PELLUCIDA (SCUDD.)

Empusa grylli

Empusa sp.

CAMPONOTUS ABDOMINALIS ROGER

Cordyceps sp.

CAMPONOTUS HERCULEANUS L.

Desmidiospora myrmecophila

CAMPONOTUS HERCULEANUS PENNSYLVANICUS (DEG.)

Beauveria globulifera

CAMPONOTUS SP.

Cordyceps lloydii

Sporotrichum minimum

CANTHON SP.

Metarrhizium anisopliae

CARABIDAE

Cordyceps stylophora

CARDIOPHORUS SP.

Metarrhizium anisopliae

CAROLINAIA CYPERI AINSLIE

Acrostalagmus aphidum

CARPOCAPSA POMONELLA (L.)

Beauveria bassiana

Beauveria globulifera

Beauveria sp.

Fusarium sp.

Hirsutella subulata

Isaria sp.

Spicaria farinosa

CATOCALA SP.

Entomophthora aulicae

CERATOMEGILLA FUSCILABRIS (MULS.)

Beauveria globulifera

CEROPLASTES FLORIDENSIS COMST.

Aschersonia turbinata

Cephalosporium lecanii

Hypocrella epiphylla

Hypocrella turbinata

CEROPLASTES SP.

Aschersonia turbinata

Hypocrella turbinata

CEUTHOPHILUS SP.

Empusa grylli

CHAETOCNEMA PULICARIA MELSH.

Beauveria globulifera

CHALCIDIDAE

Eurotium sp.

CHALCODYNUS AENEUS BOH.

Metarrhizium anisopliae

CHALEPUS DORSALUS THUNB.

Beauveria sp.

CHAULIOGNATHUS PENNSYLVANICUS DEG.

Cladosporium sp.

Empusa lampyridarum

Fusarium sp.

Macrosporium sp.

Sporotrichum sp.

CHERMES SP.

Septobasidium pinicola

CHIONASPIS CITRI COMST.

Myriangium duriaei

Myriangium floridanum

Podonectria coccicola

Septobasidium spongium

Sphaerostilbe aurantiicola

Sphaerostilbe flammea

Tetracium coccicolum

Tubercularia coccicola

CHIONASPIS CORNI COOLEY

Septobasidium carestianum

CHIONASPIS GLEDITSIAE SANDERS

Septobasidium curtisii

Septobasidium hesleri

Septobasidium lilacinoalbum

Septobasidium patouillardii

Septobasidium rugulosum

Septobasidium schweinitzii

CHIONASPIS PINIFOLIAE HETEROPHYLLAE COOLEY

Sphaerostilbe aurantiicola

CHIONASPIS SP.

Myriangium duriaei

Septobasidium curtisii

Septobasidium peckii

CHIONASPIS SYLVATICA SANDERS

Myriangium duriaei

Septobasidium curtisii

CHIRONOMIDAE

Empusa conica

CHIRONOMUS SP.

Empusa conica

Empusa culicis

Empusa montana

Metarrhizium anisopliae

CHORIZAGROTIS AUXILIARIS (GROTE)

Empusa sp.

CHLOROPS ASSIMILIS MACQ.

Empusa muscae

CHROMAPHIS JUGLANDICOLA (KLTB.)

Empoaphthora chromaphidis

CHRYSOMPHALUS AONIDUM (L.)

Microcera aurantiicola

Microcera coccophila

Microcera fujikuroi

Nectria diploa

Sphaerostilbe aurantiicola

CHRYSOMPHALUS DICTYOSPERMI (MORG.)

Microcera coccophila

Microcera sp.

Sphaerostilbe aurantiicola

CHRYSOMPHALUS ONSCURUS (COMST.)

Microcera fujikuroi

Myriangium duriaei

Nectria diploa

Septobasidium alni

Septobasidium burtii

Septobasidium curtisii

Septobasidium grandisporum

Sphaerostilbe aurantiicola

Sphaerostilbe flammea

CHRYSOMPHALUS TENEBRICOSUS (COMST.)

Microcera coccophila

Microcera fujikuroi

Nectria diploa

Septobasidium apiculatum

Septobasidium fumigatum

Sphaerostilbe aurantiicola

CHRYSOPIDAE

Torrubiella paxillata

CICADA SP.

Beauveria bassiana

Cordyceps hesleri

Cordyceps sobolifera

Isaria cicada

Vermicularia cicadina

CICADELLIDAE

Beauveria globulifera

Calonectria hirsutellae

Cladosporium aphidis

Isaria brachiata

Metarrhizium anisopliae

Sporotrichum columnare

Synnematium jonesii

Verticillium fuliginosum

CICADIDAE

Cordyceps sp.

CIRPHIS UNIPUNCTA (HAW.)

Empusa virescens
Sorosporiella uvella
Spicaria rileyi

CLEONUS PUNCTIVENTRIS GERM.

Sorosporiella uvella

COCCIDAE

Aschersonia aleyrodis
Aschersonia cubensis
Aschersonia turbinata
Cephalosporium sp.
Hirsutella lecaniicola
Hormodendron sp.
Hypocrella caulium
Hypocrella libera
Hypocrella tamoneae
Hypocrella turbinata
Microcera fujikuroi
Myriangium asterinosporum
Myriangium duriae
Myriangium floridanum
Myriangium tuberculans
Ophiocordyceps clavulata
Podonectria coccicola
Septobasidium alni
Septobasidium alveolatum
Septobasidium arboreum
Septobasidium areolatum
Septobasidium atropunctum
Septobasidium bogoriense
Septobasidium burtii acerinum
Septobasidium castaneum
Septobasidium cirratum
Septobasidium cokeri
Septobasidium conidiophorum
Septobasidium creneum
Septobasidium curtisii
Septobasidium filliforme
Septobasidium fragile
Septobasidium fumigatum
Septobasidium griseum
Septobasidium jamaicense
Septobasidium lacunosum
Septobasidium langloisii
Septobasidium lepricurii
Septobasidium leprosum
Septobasidium linderi
Septobasidium mariani
Septobasidium mexicanum
Septobasidium pannosum
Septobasidium patouillardii

Septobasidium pilosum
Septobasidium pseudopedicellatum
Septobasidium purpureum
Septobasidium retiforme
Septobasidium rhabarbarinum
Septobasidium septobasidioides
Septobasidium siparium
Septobasidium spongium
Septobasidium stevensoni
Septobasidium sydowii
Septobasidium tropicale
Septobasidium verrucosum
Septobasidium sp. hybrid between S.
castaneum and S. patouillardii
Sirospora chlorostoma
Sphaerostilbe aurantiicola
Sphaerostilbe flammea
Sporotrichum sp.
Stemphylium botryosum
Tetracium coccicolum

COCCINELLIDAE

Beauveria globulifera
Fusarium sp.
Isaria brachiata

COCCUS ACUMINATUS (SIGN.)

Aschersonia cubensis
Hypocrella sp.

COCCUS HESPERIDUM L.

Aschersonia turbinata
Beauveria globulifera
Cephalosporium lecanii
Hypocrella epiphylla
Verticillium cinnamomeum

COCCUS MANGIFERAE (GREEN)

Cephalosporium lecanii
Hypocrella epiphylla
Hypocrella turbinata
Sphaerostilbe aurantiicola

COCCUS SP.

Cephalosporium lecanii
Verticillium cinnamomeum

COCCUS VIRIDIS GREEN

Aschersonia sp.
Cephalosporium lecanii
Sphaerostilbe aurantiicola

COCHLIOMYIA MACELLARIA (F.)

Cordyceps dipterigena
Entomophthora bullata

COCYTIUS ANTAEUS DRURY

Cordyceps sphingum

COLEOPTERA

Cordyceps insignis
 Cordyceps melolonthae
 Cordyceps palustris
 Cordyceps pittieri
 Cordyceps sobolifera
 Cordyceps stylophora
 Cordyceps submilitaris
 Cordyceps subsessilis
 Cordyceps superficialis
 Cordyceps variabilis
 Cordyceps viperina
 Empusa apiculata major
 Isaria brachiata
 Metarrhizium anisopliae
 Ophiocordyceps acicularis
 Penicillium waksmani
 Spicaria laxa
 Sporotrichum flavissimum
 COLIAS EURYTHEME BDV.
 Fusarium sp.
 COLIAS PHILODICE GODART
 Empusa sphaerosperma
 COMSTOCKIELLA SABALIS (COMST.)
 Septobasidium sabalis
 Septobasidium sabal-minor
 Sphaerostilbe aurantiicola
 CONOPIA EXITIOSA (SAY)
 Fusarium sp.
 CONOPIA PYRI HARR.
 Hirsutella subulata
 CONOTRACHELUS ERINACEUS LEC.
 Beauveria globulifera
 CONOTRACHELUS NEMUPHAR (HBST.)
 Beauveria globulifera
 CORCORIS BATATAS (F.)
 Beauveria globulifera
 CORYTHAICA MONACHA STAL
 Acrostalagmus albus
 Acrostalagmus aphidum
 CORYTHUCHA GOSSYPII (F.)
 Beauveria globulifera
 COTINIS MITIDA (L.)
 Metarrhizium anisopliae
 CRAMBUS SP.
 Beauveria bassiana
 Empusa sp.
 CRIOCERIS ASPARAGI (L.)
 Acremonielliella sp.
 CRYMODES DEVASTATOR (BRACE)
 Fusarium sp.

CRYPTOCERCUS PUNCTULATUS SCUDD.

Metarrhizium anisopliae
 CRYPTOCERCUS SP.
 Metarrhizium anisopliae
 CRYPTOPHYLLASPIS LIQUIDAMBARIS KOT.
 Septobasidium alni
 Septobasidium alni squamosum
 Septobasidium cremeum
 CRYPTORHYNCHUS SP.
 Ophiocordyceps peltata
 CUCUJIDAE
 Beauveria globulifera
 CULEX SP.
 Empusa culicis
 CULICIDAE
 Empusa culicis
 Empusa sphaerosperma
 Trichoderma viride
 CURCULIO CARYAE (HORN)
 Beauveria bassiana
 Metarrhizium anisopliae
 CURCULIONIDAE
 Beauveria globulifera
 Cordyceps curculionum
 Empusa sphaerosperma
 CYLAS FORMICARIUS (F.)
 Beauveria globulifera
 Fusarium solani
 Fusarium sp.
 DASYCHIRA GROENLANDICA HOMEYER
 Beauveria densa
 DATANA SP.
 Beauveria globulifera
 DELTOIDINAE
 Empusa apiculata
 Empusa apiculata major
 DENDROCTONUS FRONTALIS ZIMM.
 Cyliandrocolla dendroctoni
 DENDROIDES BICOLOR NEWM.
 Cordyceps stylophora
 DESMORIS FULVUS (LEC.)
 Cordyceps sp.
 Metarrhizium anisopliae
 DIABROTICA LONGICORNIS (SAY)
 Beauveria globulifera
 Metarrhizium anisopliae
 DIABROTICA SOROR LEC.
 Beauveria globulifera
 Empusa sp.
 DIABROTICA VITTATA (F.)
 Beauveria globulifera

DIACRISIA VIRGINICA (F.)

Beauveria bassiana
Cladosporium sp.
Empusa grylli
Entomophthora aulicae
Macresporium sp.

Metarrhizium anisopliae

DIALEURODES CITRI (ASHM.)

Aegerita webberi
Aschersonia flavo-citrina
Aschersonia goldiana
Aschersonia sp.
Cladosporium sp.
Fusarium aleyrodis
Hypocrella disjuncta
Hypocrella phyllogena
Hypocrella sp.

Microcera sp.

Sphaerostilbe aurantiicola

Sporotrichum sp.

Verticillium cinnamomeum

DIALEURODES CITRIFOLII (MORG.)

Aegerita webberi
Aschersonia aleyrodis
Aschersonia goldiana
Microcera sp.

Sphaerostilbe aurantiicola

Verticillium cinnamomeum

DIAPREPES ABBREVIATUS L.

Metarrhizium anisopliae

DIASPIS SP.

Septobasidium westoni
Sphaerostilbe aurantiicola
Verticillium cinnamomeum

DIASPIS ZAMIAE MORG.

Aschersonia zania
Beauveria globulifera

DIATRAEA CRAMBIDOIDES (GROTE)

Beauveria bassiana

DIATRAEA LINEOLATA WALK.

Hirsutella barberi

DIATRAEA SACCHARALIS (F.)

Aspergillus parasiticus
Beauveria bassiana
Beauveria globulifera
Cordyceps sp.
Fusarium sp.
Hirsutella barberi
Hirsutella sp.
Penicillium luteum

DIATRAEA SP.

Fusarium larvarum

Fusarium sp.

DICRANOMYIA PUBIPENNIS O. S.

Hymenostilbe ampullifera

DIPTERA

Cordyceps dipterigena

Cordyceps sp.

Empusa americana

Empusa apiculata

Empusa caroliniana

Empusa conglomerata

Empusa conica

Empusa dipterigena

Empusa echinospora

Empusa gracilis

Empusa grylli

Empusa montana

Empusa muscae

Empusa papillata

Empusa sepulchralis

Empusa sp.

Empusa variabilis

Fusarium sp.

Hymenostilbe dipterigena

Saprolegnia ferax

Saprolegnia kaufmanniana

Saprolegnia monoica

Saprolegnia monoica vexans

DISONYCHIA PENNSYLVANICA (ILL.)

Beauveria globulifera

DISONYCHIA TRIANGULARIS (SAY)

Beauveria globulifera

DISONYCHIA XANTHOMELAENA (DALM.)

Beauveria globulifera

DISSOSTEIRA CAROLINA (L.)

Empusa grylli

Empusa sphaerosperma

DORYTOMUS SP.

Beauveria globulifera

DRAECULACEPHALA MOLLIPES (SAY)

Empusa grylli

DROSOPHILA MELANOGASTER MEIG.

Empusa muscae

DROSOPHILA REPLETA WOLLASTON

Empusa muscae

DROSOPHILA SP.

Beauveria globulifera

Cordyceps dipterigena

DYNASTINAE

Metarrhizium anisopliae

DYSDERCUS SP.

Isaria pattersoniae

DYSLOBUS DECORATUS (LEC.)

Beauveria bassiana

ELATERIDAE

Cordyceps gracilis

Cordyceps stylophora

Cordyceps variabilis

Metarrhizium anisopliae

Ophiocordyceps acicularis

Spicaria rileyi

ELBODES SP.

Metarrhizium anisopliae

EMPOASCA FABAE (HARR.)

Beauveria globulifera

Empusa sphaerosperma

EMPOASCA PAPAYAE OMAN

Empusa apiculata major

EMPOASCA SP.

Empusa sphaerosperma

EPICAUTA LEMNISCATA F.

Beauveria globulifera

EPILACHNA BOREALIS (F.)

Cordyceps sp.

EPILACHNA SP.

Metarrhizium anisopliae

EPILACHNA VARIVESTIS MULS.

Beauveria globulifera

Isaria sp.

Penicillium sp.

EPITHECIA SP.

Empusa geometralis

ERINNYIS ALOPE (DRURY)

Hymenostilbe sphingum

ERIOCOCCINAE

Hypocrella epiphylla

ESTIGMENE ACRATA (DRURY)

Beauveria globulifera

Empusa sp.

Empusa grylli

Entomophthora aulicae

EUCALYMNATUS TESSELLATUS (SIGN.)

Aschersonia cubensis

Aschersonia sp.

Hypocrella epiphylla

EUCHAETIAS EGLE DRURY

Entomophthora aulicae

EUCOSMA GLOMERATA (WLSM.)

Hirsutella sp.

EUTHEOLA RUGICEPS (LEC.)

Beauveria bassiana

EUMENES SP.

Cordyceps ditmari

EUPRODES VOLUCRIS O. S.

Empusa muscae

EUPHYDEYAS PHAETON DRURY

Beauveria vexans

EUXOA TESSELLATA (HARR.)

Sorosporella uvella

FELTIA ANNEXA (TREIT.)

Beauveria sp.

FELTIA DUCENS WALK.

Beauveria sp.

FELTIA GLADIARIA (MORR.)

Beauveria sp.

FELTIA SUBGOTHICA (HAW.)

Fusarium sp.

Sorosporella uvella

FIORINIA FIORINIAE (TARG.)

Microcera coccophila

FORFICULA AURICULARIA L.

Entomophthora forficulae

Metarrhizium anisopliae

FORFICULA SP.

Entomophthora sp.

FORFICULIDAE

Metarrhizium anisopliae

FORMICA SP.

Desmidiospora myrmecophila

FORMICIDAE

Beauveria globulifera

Beauveria vexans

Cordyceps myrmecophila

Desmidiospora myrmecophila

Hymenostilbe formicarum

Ophiocordyceps unilateralis

Saprolegnia ferax

FULGORIDAE

Hirsutella citriformis

GALERUCELLA XANTHOMELAENA (SCHR.)

Beauveria globulifera

GILPINIA POLYTOMA (HTG.)

Aspergillus flavus

GRAPHIPHORA C-NIGRUM (L.)

Sorosporella uvella

GRAPHOLITHA MOLESTA (BUSCK)

Isaria sp.

GRYLLIDAE

Penicillium albellum

GRYLLOTALPA HEXADACTYLA PERTY

Cordyceps monticola

GRYLLUS SP.

Beauveria globulifera

HADENOECUS SUBTERRANEUS SCUDD.

Beauveria densa

HALICTUS ILLINOISENSIS ROBT.

Beauveria globulifera

HALICTUS SP.

Empusa sphaerosperma

HARMOLITA SP.

Aspergillus sp.

Fusarium sp.

HARMOLITA TRITICI (FITCH)

Entomophthora sp.

HARPALUS SP.

Synnematum jonesii

HELIOPHILA SP.

Beauveria sp.

Beauveria bassiana

HELIOTHIS ARMIGERA (HBN.)

Beauveria bassiana

Beauveria globulifera

Cordyceps sp.

Fusarium sp.

Isaria sp.

Metarrhizium anisopliae

Penicillium sp.

Sorospora uvella

Spicaria heliothis

Spicaria rileyi

Spicaria sp.

HELIOTHIS SP.

Fusarium merismoides

HEMARIS SP.

Beauveria globulifera

HEMIPTERA

Empusa apiculata

Empusa fresenii

Empusa lageniformis

Empusa occidentalis

Empusa thaxteriana

Synnematum jonesii

HEXAPODA

Cordyceps ophioglossoides

Cordyceps puiggarii

Cordyceps superficialis

Empusa fresenii

Isaria crassa

Isaria dussii

Isaria furcata

Isaria tenuipes

Ophiocordyceps caloceroides

HIPPODAMIA CONVERGENS GUER.

Beauveria globulifera

HORMAPHIS HAMAMELIDIS FITCH

Cladosporium sp.

Empusa aphidis

HOWARDIA BICLAVIS (COMST.)

Myriangium duriaei

Sphaerostilbe auranticola

HYLASTINUS OBSCURUS (MARSHAM)

Beauveria bassiana

HYLOTOMA BERBERIDIS (SCHR.)

Entomophthora sp.

HYMENOPTERA

Beauveria densa

Empusa tenthredinis

Hirsutella citriformis

HYPERA NIGRIROSTRIS (F.)

Empusa sphaerosperma

Metarrhizium anisopliae

HYPERA POSTICA (GYLL.)

Empusa sphaerosperma

Metarrhizium anisopliae

Sporotrichum minimum

HYPERA PUNCTATA (F.)

Acremoniella verrucosa

Beauveria bassiana

Beauveria globulifera

Empusa sphaerosperma

Metarrhizium anisopliae

Spicaria rileyi

HYPHANTRIA CUNEA (DRURY)

Empusa apiculata

Empusa grylli

HYPHANTRIA SP.

Beauveria globulifera

HYPHANTRIA TEXTOR HARR.

Empusa apiculata

Empusa apiculata major

Empusa grylli

Entomophthora aulicae

HYPODERMA BOVIS (DEG.)

Fusarium sp.

HYPODERMA LINEATUM (DEVILL.)

Fusarium sp.

HYSTERONEURA SETARIAE (THOS.)

Acrostalagus aphidum

ICERYA PURCHASI MASK.

Cephalosporium lecanii

Cladosporium aphidis

Cladosporium herbarum

Cladosporium sp.

Spicaria javanica

Spicaria sp.

ICHNEUMONIDAE

Empusa sphaerosperma

ISCHINASPIS LONGIROSTRIS (SIGN.)

Microcera coccophila

Microcera fujikuroi

Nectria diploa

Sphaerostilbe aurantiicola

ISIA ISABELLA (A. & S.)

Cordyceps militaris

Empusa grylli

Entomophthora aulicae

Spicaria farinosa

KOLLA SIMILIS (WALK.)

Empusa muscae

LAMPYRIDAE

Empusa sphaerosperma

LAPHYGA FRUGIPERDA (A. & S.)

Beauveria globulifera

Empusa sphaerosperma

Spicaria rileyi

LEBIA BIVITTATA F.

Beauveria globulifera

LECANIUM CORNI BOUCHE

Hirsutella lecaniicola

Ophiocordyceps clavulata

LECANIUM FLETCHERI (CKLL.)

Ophiocordyceps clavulata

LECANIUM NIGROFASCIATUM PERG.

Aschersonia sp.

Cephalosporium lecanii

Ophiocordyceps clavulata

LECANIUM QUERCIFEX FITCH

Ophiocordyceps clavulata

LECANIUM SP.

Aschersonia aleyrodis

Aschersonia aristata

Aschersonia basicystis

Aschersonia cubensis

Cephalosporium lecanii

Hypocrella disjuncta

Hypocrella epiphylla

Ophiocordyceps clavulata

Sporotrichum lecanii

LEPIDOPTERA

Beauveria bassiana

Cordyceps belizensis

Cordyceps elongata

Cordyceps gracilis

Cordyceps isarioides

Cordyceps militaris

Cordyceps paludosa

Empusa geometralis

Empusa sphaerosperma

Empusa virescens

Entomophthora aulicae

Fusarium sp.

Isaria dussii

Isaria furcata

Isaria nigripes

Metarrhizium anisopliae

Spicaria farinosa

LEPIDOSAPHES BECKII (NEWM.)

Aschersonia cubensis

Aschersonia turbinata

Atichia dominicana

Fusarium aleyrodis

Hypocrella epiphylla

Hypocrella turinata

Microcera sp.

Microcera aurantiicola

Microcera coccophila

Microcera fujikuroi

Myriangium duriaei

Myriangium floridanum

Nectria diploa

Podonectria coccicola

Scleroderma gigaspora

Septobasidium conidiophorum

Septobasidium lepidosaphis

Septobasidium pedicellatum

Septobasidium spongium

Sphaerostilbe aurantiicola

Tetracrium coccicolum

Tubercularia coccicola

Verticillium cinnamomeum

LEPIDOSAPHES GLOVERII (PACK.)

Microcera coccophila

Myriangium duriaei

Podonectria coccicola

Sphaerostilbe aurantiicola

Tetracrium coccicolum

Verticillium cinnamomeum

LEPIDOSAPHES LASIANTHIS (GREEN)

Microcera coccophila

LEPIDOSAPHES PALLIDA (GREEN)

Microcera coccophila

LEPIDOSAPHES SP.

Podonectria coccicola

Sphaerostilbe aurantiicola

LEPIDOSAPHES ULMI (L.)

Myriangium duriaei

Sphaerostilbe aurantiicola

Tetracrium coccicolum

- LEPTINOTARSA DECEMLINEATA (SAY)
Beauveria bassiana
Beauveria doryphorae
- LEUCASPIS INDICA MARL.
Septobasidium pilosum
- LIGYRUS GIBBOSUS (DEG.)
Beauveria bassiana
- LIGYRUS TUMULOSUS BURM.
Metarrhizium anisopliae
- LIMONIUS CALIFORNICUS (MANN.)
Metarrhizium anisopliae
- LIMONIUS INFUSCATUS MOTS.
Metarrhizium brunneum
- LOXOSTEGE STICTICALIS (L.)
Empusa Sphaerosperma
- LUCILIA CAESAR (L.)
Empusa americana
Empusa muscae
- LUIDIUS CYLINDRIFORMIS (HBST.)
Metarrhizium anisopliae
- LYGABONEMATUS ERICHSONII (HTG.)
Spicaria farinosa
- LYGUS COMMUNIS NOVASCOTIENSIS KNIGHT
Empusa erupta
Empusa sp.
- MACRONOCTUA ONUSTA GROTE
Beauveria globulifera
- MACROSIPHONIELLA SANBORNII (GILL.)
Acrostalagnus aphidum
- MACROSIPHUM ALLII JACKSON
Empusa aphidis
- MACROSIPHUM LACTUCAE (L.)
Empusa aphidis
- MACROSIPHUM PISI (KLTB.)
Empusa aphidis
Empusa thaxteriana
Stemphylium sp.
- MACROSIPHUM SOLANIFOLII (ASHM.)
Empusa sphaerosperma
- MAGICICADA SEPTEDECIM (L.)
Beauveria bassiana
Beauveria globulifera
Fusarium sp.
Massospora cicadina
Metarrhizium anisopliae major
Mucor sp.
- MALACOSOMA AMERICANA (F.)
Aspergillus flavescens
Empusa grylli
Entomophthora gauliae
- MALACOSOMA SP.
Empusa grylli
- MELANOCALLIS CARYAEFOLIAE (DAVIS)
Cladosporium herbarum
- MELANOPLUS BIVITTATUS (SAY)
Empusa grylli
- MELANOPLUS DIFFERENTIALIS (THOS.)
Beauveria globulifera
Empusa grylli
- MELANOPLUS FEMUR-RUBRUM (DEG.)
Beauveria globulifera
Empusa grylli
- MELANOPLUS MEXICANUS SAUSS.
Beauveria globulifera
Empusa grylli
- MELANOPLUS MEXICANUS SPRETUS (WALSH)
Beauveria globulifera
Empusa grylli
- MELANOPLUS SP.
Beauveria globulifera
Empusa grylli
- MELOLONTHA SP.
Isaria ritchiei
- MELOLONTHA VULGARIS F.
Beauveria densa
- METAMASIMUM HEMIPTERUS (L.)
Metarrhizium anisopliae
- MEZIRA EMARGINATA (SAY)
Synnematum jonesii
- MEZIRA LOBATA (SAY)
Synnematum jonesii
- MICROBRACON LEBETOR (SAY)
Aspergillus parasiticus
- MICROPEZIDAE
Cordyceps sp.
- MICROPLECTRON FUSCIPENNIS ZETT.
Aspergillus flavus
- MONOCREPIDIUS SP.
Beauveria globulifera
- MONOCREPIDIUS LIVIDUS (DEG.)
Metarrhizium anisopliae
- MORDELLISTENA SP.
Aspergillus flavus
- MORELLIA SCAPULATA (BIGOT)
Entomophthora sp.
- MURGANTIA HISTRIONICA (HAHN)
Beauveria globulifera
- MUSCA DOMESTICA L.
Aspergillus sp.
Beauveria globulifera
Empusa americana
Empusa grylli
Empusa muscae
Empusa sphaerosperma
Fusarium poae

MUSCA SP.

Empusa sphaerosperma

MUSCIDAE

Beauveria densa

Cordyceps dipterigena

Empusa grylli

Empusa sphaerosperma

Hymenostilbe dipterigena

Saprolegnia monoica

MUSCINA STABULANS (FALL.)

Empusa americana

MYCETOCOCCUS EHRHORNII (CKILL.)

Septobasidium canescens

MYCETOPHILIDAE

Empusa dipterigena

Empusa sphaerosperma

MYOCHROUS DENTICOLLIS (SAY)

Empusa echinospora

MYZUS PERSICAE (SULZ.)

Acrostalagnus aphidum

Cladosporium aphidis

Empusa aphidis

Empusa fresenii

Macrosporium sp.

NABIS ROSEIPENNIS REUT.

Beauveria globulifera

NASUTITERMES SP.

Entomophthora coronata

NEPHELODES EMEDONIA (CRAV.)

Fusarium sp.

Spicaria farinosa

NEUROPTERA

Empusa rhizospora

NEZARA VIRIDULA (L.)

Isaria pattersoniae

NOTOLOPHUS ANTIGUA L.

Empusa grylli

Entomophthora aulicae

NYGMIA PHAEORRHOEA (DONOV.)

Penicillium brevicaulis

NYSIUS ERICAE (SCHILL.)

Beauveria bassiana

Beauveria globulifera

ODONASPIS PIMENTAE NEWST.

Myriangium duriaei

OLIBRUS SP.

Beauveria globulifera

ORCHESTES RUFIPES LEC.

Cladosporium aphidis

ORMENIS MARGINATA BRUNNICH

Isaria sp.

ORMENIS PYGMAEA F.

Metarrhizium anisopliae

OSCINELLA FRIT (L.)

Fusarium sp.

OSCINIS SP.

Empusa muscae

PACHYSPHINX MODESTA HARR.

Entomophthora aulicae

PAGASA FUSCA (STEIN)

Beauveria globulifera

PALAEOCOCCUS ROSAE (R. & H.)

Aspergillus flavus

PANTOMORUS LEUCOLOMA (BOH.)

Metarrhizium anisopliae

PARADEXODES EPILACHNAE ALD.

Penicillium sp.

PARALEYRODES PERSEAE (QUAINT.)

Aschersonia aurantiaca

Stereocrea aurantiaca

PARANDRA BRUNNEA (F.)

Beauveria globulifera

PARATETRANYCHUS YOTHERSI MCG.

Rhinotrichum depauperatum

PARLATORIA PERGANDII COMST.

Myriangium duriaei

Podonectria coccicola

Tetracrium coccicolum

Sphaerostilbe aurantiicola

Verticillium cinnamomeum

PARLATORIA PROTEUS (CURT.)

Septobasidium apiculatum

Sphaerostilbe aurantiicola

PEMPHIGUS BETAE DOANE

Empusa aphidis

PENTATOMIDAE

Beauveria globulifera

PEREGRINIS MAIDIS (ASHM.)

Empusa fresenii

Empusa sp.

Hirsutella floccosa

PERIDROMA MARGARITOSA (HAW.)

Entomophthora aulicae

PERIDROMA SAUCIA (HEN.)

Sorosporaella uvella

PERIPHYLLIS LYROPICTUS (KESS.)

Empusa fresenii

PETROPHORA SP.

Empusa apiculata

Empusa geometralis

PHALAEENIDAE

Beauveria globulifera

Isaria sp.

Sorosporaella uvella

Spicaria rileyi

PHENACOCOCCUS SP.

Empusa fresenii
Entomophthora fumosa

PHILONTHUS SP.

Synnematum jonesii

PHOLUS VITIS L.

Cordyceps sphingum

PHORMIA REGINA (MEIG.)

Empusa americana

PHORODON HUMULI (SCHR.)

Empusa aphidis

PHRYGANEIDAE

Empusa rhizospora

PHYLLOPHAGA ANXIA LEC.

Metarrhizium anisopliae

PHYLLOPHAGA CITRI SMYTH

Metarrhizium anisopliae

PHYLLOPHAGA DRAKEI KBY.

Metarrhizium anisopliae

PHYLLOPHAGA FERVIDA (F.)

Cordyceps militaris

PHYLLOPHAGA FUSCA (FROEL.)

Beauveria densa

Cordyceps melolonthae

Metarrhizium anisopliae

Ophiocordyceps acicularis

PHYLLOPHAGA FUFILIS LEC.

Metarrhizium anisopliae

PHYLLOPHAGA GUANICANA SMYTH

Metarrhizium anisopliae

PHYLLOPHAGA INVERSA HORN

Beauveria globulifera

PHYLLOPHAGA PORTORICENSIS SMYTH

Metarrhizium anisopliae

PHYLLOPHAGA RUGOSA (MELSH.)

Metarrhizium anisopliae

PHYLLOPHAGA SP.

Beauveria globulifera

Beauveria vexans

Cordyceps melolonthae

Cordyceps militaris

Empusa sphaerosperma

Metarrhizium anisopliae

Spicaria farinosa

PHYLLOPHAGA VANDINEI SMYTH

Metarrhizium anisopliae

PHYMATIDAE

Beauveria globulifera

PHYTALUS APICALIS BLANCH.

Metarrhizium anisopliae

PIERIS BRASSICAE (L.)

Empusa sphaerosperma

PIERIS RAPAE (L.)

Beauveria globulifera

Beauveria vexans

Empusa sphaerosperma

PINNASPIS MINOR MASK.

Septobasidium spongium

Sphaerostilbe aurantiicola

Tubercularia coccicola

PLAGIONGNATHUS SP.

Empusa crupta

PLATYPENA SCABRA (F.)

Spicaria rileyi

PLUSIA SP.

Beauveria globulifera

POLIA LEGITIMA (GROTE)

Cordyceps sp.

Sporotrichum minimum

POLIA RENIGERA (STEPH.)

Beauveria sp.

POLISTES AMERICANA (F.)

Cordyceps sphecocephala

Hirsutella saussurei

POLISTES ANNULARIS (L.)

Hirsutella saussurei

POLISTES LINEATUS (F.)

Cordyceps sphecocephala

POLISTES SP.

Hirsutella saussurei

POLLENIA RUDIS (F.)

Empusa muscae

POLYGONIA INTERROGATIONIS (F.)

Beauveria globulifera

POPILLIA JAPONICA NEWM.

Beauveria bassiana

Metarrhizium anisopliae

PORTHETRIA DISPAR (L.)

Entomophthora sp.

Spicaria farinosa

PROCIPHILUS IMBRICATOR (FITCH)

Scorias spongiosa

PROCIPHILUS TESSELLATUS (FITCH)

Scorias spongiosa

PRODENIA ORNITHOGALLI GUEN.

Beauveria sp.

Spicaria rileyi

PRODENIA PRAEFICA GROTE

Fusarium sp.

PRODENIA SP.

Aspergillus niger v.

Empusa sp.

PROTOPARCE SEXTA (JOHAN.)

Beauveria globulifera

Empusa grylli

Entomophthora aulicae

PROTOPARCE SP.

Beauveria globulifera

PROTOPULVINARIA PYRIFORMIS (CKLL.)

Cephalosporium lecanii

Hypocrella epiphylla

PSEUDONIDIA DUPLEX (CKLL.)

Cephalosporium lecanii

Cladosporium sp.

Microcera coccophila

PSEUDOCOCCUS BONINSIS (KUW.)

Aspergillus flavus

Aspergillus parasiticus

Isaria sp.

PSEUDOCOCCUS CITRI (RISSO)

Empusa fresenii

Empusa lecanii

Entomophthora fumosa

Sphaerostilbe aurantiicola

PSEUDOCOCCUS NIPAE (MASK.)

Cephalosporium lecanii

Empusa fresenii

PSEUDOCOCCUS SP.

Aspergillus flavus

Aspergillus parasiticus

Aspergillus sp.

Entomophthora sp.

PSEUDODIASPIS YUCCAE (CKLL.)

Sphaerostilbe aurantiicola

PSOCUS SP.

Entomophthora chromaphidis

PSYLLA MALI (SCHMDB.)

Empusa sphaerosperma

PTILODACTYLA SERRICOLLIS (SAY)

Empusa apiculata major

PTYCHODES TRILINEATA (L.)

Empusa sphaerosperma

PYRAUSTA NUBILALIS (HBN.)

Acrostalagmus albus

Aspergillus parasiticus

Beauveria bassiana

Beauveria globulifera

Hirsutella sp.

Spicaria farinosa

RHAGOLETIS COMPLETA CRESS.

Empusa grylli

Metarrhizium anisopliae

RHOPALOSIPHUM PRUNIFOLIAE (FITCH)

Empusa sp.

RHOPALOSIPHUM PSEUDOBRASSICAE (DAVIS)

Acrostalagmus aphidum

Empusa aphidis

Empusa sp.

RHOPALOSIPHUM RUFOMACULATUM (WILSON)

Acrostalagmus aphidum

RHOPOBOTA NAEVANA (HBN.)

Empusa sphaerosperma

RODOLIA CARDINALIS (MULS.)

Beauveria globulifera

SAISSETIA HEMISPHAERICA (TARG.)

Aschersonia cubensis

Cephalosporium lecanii

Hypocrella epiphylla

Torrubiella lecanii

SAISSETIA NIGRA (NIETN.)

Cephalosporium lecanii

SAISSETIA OLEAE (BERN.)

Cephalosporium lecanii

Isaria sp.

Sphaerostilbe aurantiicola

SAMIA CECROPIA (L.)

Beauveria globulifera

Metarrhizium anisopliae

SAPROMYZA LONGIPENNIS (F.)

Empusa echinospora

SCAPTERISCUS ACLETUS R. & H.

Cordyceps sp.

Metarrhizium anisopliae

Sorospora uvela

SCARABAEIDAE

Cordyceps macularis

Cordyceps michiganensis

Cordyceps sobolifera

Metarrhizium anisopliae

Monilia penicillioides

SCATOPIAGA SP.

Empusa sp.

SCHISTOCERCA AMERICANA (DRURY)

Beauveria globulifera

SCHISTOCERCA PARANENSIS BURM.

Botrytis sp.

SCHIZURA CONCINNA (A. & S.)

Beauveria vexans

SCIARA SP.

Empusa sciarae

SCOLYTUS MULTISTRIATUS (MARSHAM)

Beauveria bassiana

SELENASPIDUS ARTICULATUS (MORG.)

Hornodendron sp.

Microcera coccophila

Microcera fujikuroi

Nectria diploa

Sphaerostilbe aurantiicola

SELENOTERIPS RUBROCINCTUS (GIARD)

Beauveria globulifera

SIMULIUM VENUSTUM SAY

Empusa culicis

SIPHA FLAVA (FORBES)

Acrostalagmus albus

Acrostalagmus aphidum

Cladosporium sp.

SITONA HISPIDULA (F.)

Beauveria bassiana

Beauveria globulifera

SOLJEEA PUGNAX (F.)

Beauveria globulifera

SPHENOPHORUS SP.

Cordyceps sp.

SPHINGIDAE

Beauveria globulifera

Hymenostilbe sphingum

Rhizopus nigricans

SPHINX SP.

Cordyceps sphingum

Hymenostilbe sphingum

Saprolegnia ferax

STAPHYLINIDAE

Beauveria bassiana

Beauveria globulifera

STERNECHUS PALUDATUS CASEY

Fusarium sp.

STILPNOTIA SALICIS (L.)

Beauveria globulifera

Isaria sp.

Spicaria canadensis

STRATAEGUS BARBICERUS CHAPIN

Metarrhizium anisopliae

STRATAEGUS QUADRIFOVEATUS BEAUV.

Metarrhizium anisopliae

STRATAEGUS SP.

Metarrhizium anisopliae

SYRPHIDAE (Syrphus sp.)

Empusa muscae

TACHINA SP.

Empusa muscae

TACHYTES ARGENTIPES SMITH

Cordyceps sphecocephala

TENEDRIONIDAE

Metarrhizium anisopliae

TENTHREDINIDAE

Beauveria globulifera

Empusa tenthredinis

TETRAMYCHUS TELARIUS (L.)

Aspergillus depauperatus

TIERA SP.

Empusa geometralis

THRIPIDAE

Beauveria globulifera

THRIPS TABACI LIND.

Empusa sphaerosperma

THYANTIA CUSTATOR (F.)

Beauveria globulifera

THYRIDOPTERYX EPHEMERAIFORMIS (HAW.)

Beauveria vexans

TIDICEN VITRIPENNIS (SAY)

Cordyceps sp.

TIPHIA INORNATA SAY

Metarrhizium anisopliae

TIPULA INTUSCATA LOEW

Beauveria densa

TIPULA FLAVICANS F.

Empusa grylli

TIPULA SP.

Empusa caroliniana

Empusa conglomerata

Empusa dipterigena

TIPULIDAE

Beauveria densa

Empusa conglomerata

Empusa sepulchralis

Empusa variabilis

TOMASPIS POSTICA (WALK.)

Metarrhizium anisopliae

TOMASPIS SACCHARINA DIST.

Empusa sp.

Metarrhizium anisopliae

TOMICUS SP.

Isaria tonicii

TORTRIX SP.

Empusa apiculata

TOUMBYELLA LIRIODENDRI (GMEL.)

Aschersonia cubensis

Hypocrella epiphylla

TOXOPTERA AURANTIAE (FONSC.)

Acrostalagmus aphidum

TRIALEURODES ABUTILONEA (HALD.)

Aschersonia aleyrodis

TRIALEURODES FLORIDENSIS (QUAINT.)

Aschersonia aleyrodis

TRIALEURODES VARIABILIS QUAIN.

Spicaria aleyrodis

TRICHOBARIS TEXANA LEC.

Beauveria globulifera

TRIMEROTHROPIS MARITIMA (HARR.)

Empusa grylli

TROPAEA LUNA (L.)

Hirsutella sp.

TYPHLOCYBA POMARIA MCATEE

Empusa sphaerosperma

TYPHLOCYBA SP.

Empusa apiculata

VESPA SP.

Beauveria globulifera

Cordyceps smithii

Cordyceps sphecocephala

Isaria sp.

VESPIDAE

Hirsutella saussurei

Hirsutella sp.

Hymenostilbe sphecophila

Ophiocordyceps humberti

VESPULA VULGARIS L.

Cordyceps ditmari

VINSONIA STELLIFERA WESTW.

Aschersonia turbinata

ZONOSEMATA ELECTA (SAY)

Fusarium sp.

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ACARINA (SPIDERS)

Acremonium tenuipes

Beauveria densa

Cephalosporium sp.

Cordyceps dipterigena (on *Mydaea* sp.)

Cordyceps thaxteri

Gibellula araneorum (on *Attidae*)

Hymenostilbe arachinophila

Isaria atypicola

Isaria gigantea (on *Mygale cubana* Walk.)

Moniliopsis rigida

Sporotrichum columnare

Torrubiella gibellulac

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FONTARIA CORRUGATA (WOOD) (A MILLIPED)

Entomophthora sp.

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POLYDESMUS SP. (A MYRIAPOD)

Beauveria globulifera

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$$1 \leq \beta \leq \beta^* \quad \text{and} \quad \beta^* = \frac{1}{2} \left(1 + \frac{1}{\alpha} \right) \quad \text{if} \quad \alpha \geq 1 \quad \text{and} \quad \alpha \geq 1 \quad \text{and} \quad \alpha \geq 1$$

1. *Phragmites australis* (Cav.) Trin. ex Steud. (Common reed)

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